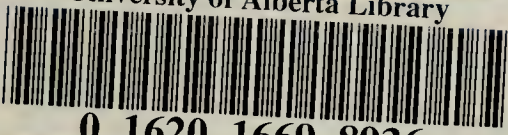


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The BLUE JAY

A JOURNAL OF NATURAL HISTORY AND CONSERVATION
FOR SASKATCHEWAN AND ADJACENT REGIONS

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Regina, Saskatchewan

June, 1968



Whooping Cranes heading north

Photo by Ed Bry

Published quarterly by the
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Editorial

Harold Gilliam in *Audubon* (March-April, 1968, pp. 45-65), with a supporting picture essay by Rondal Partridge, describes "The rape of San Francisco Bay." He explains how San Francisco Bay, an incomparable harbor, is an extension of the Pacific Ocean, formed at the end of the last ice age when the rising sea flowed through a river-carved gorge, the Golden Gate, to flood a long valley in the Coast Range. The Bay is 50 miles long, and once contained more than 700 square miles of blue water. It is the favourite resting and feeding habitat for thousands of migratory birds of the Pacific Flyway. It is the home of countless animals which live in its fertile marshes. Four million people live in the area; many more will come. But already some are beginning to realize that this wonderful place is being steadily and relentlessly destroyed.

San Francisco Bay is the most important single stopping place for birds in the Pacific Flyway. About a million waterfowl, mostly ducks, winter on the bay, and along the tidal flats there may be at times as many as 30,000 shorebirds per mile. In this area the cities are actively expanding into the bay from all sides. The bay's original 700-square-mile area has been diminished to 400 square miles. Of 300 square miles of natural marshland only 75 are left. There is scarcely a cove, inlet or marsh remaining which has not been marked for filling, for freeways, airports, playing fields, factories, shopping centers, subdivisions or one of at least 32 garbage disposal sites.

Now communities around the shores of San Francisco are concerned about preserving and improving their waterfronts. They are beginning to prohibit more filling of the bay; they are beginning to control and prevent further pollution of its water and air. They claim the right to prevent destruction of their environment which belongs not only to them but also to future generations. If the "Save-the-Bay people" accomplish a near miracle and save something of the natural area in which they have grown up and to which they have become deeply attached, they will be an inspiration to us all.

We may feel that Saskatchewan does not have the problems of a large urban complex like San Francisco. But if we stop to think seriously, we must realize that we, too, have problems of water pollution, soil and air pollution, and the rapid and irreparable loss of natural areas. For example, our fertile grasslands with their shallow, easily drained sloughs are disappearing too soon and too completely from the Saskatchewan scene. In the SNHS we have been interested in promoting the idea of a national grassland park, not only because such a park would provide a way for Canadians to come to know and appreciate what our great plains were like in the days before settlement, but also because it would guarantee the preservation of a worthwhile segment of grassland.

As individuals, many of us can help by saving a few small corners, woods, grassy slopes or sloughs from the bulldozer or from overgrazing. All concerned individuals, however, have another channel for action. Societies like our SNHS which are trying to set up sanctuaries to preserve wildlife and its native habitat are in urgent need of support. The pressure to grow cash crops like wheat often forces the clearing of areas which are not really suited for cultivation. Large tracts of marginal farmland such as those pictured in the cover photo might much better have been preserved as grassland. Wide open grasslands will be valued more and more as an urban civilization closes in upon us. In our materialistically oriented society we forget too often the intangible worth of wildness and open spaces.

In order to promote projects devoted to saving natural areas we need a national voice. This necessitates a closer association of all conservation-minded Canadians. Nor should this cooperation stop at our border. It has been most encouraging to the SNHS in the past year to learn of the vigorous development of a new society to the south of us—the North Dakota Natural Science Society which is now publishing the first issue of its new journal, *The Prairie Naturalist*. We shall welcome this journal warmly, for its name tells us that our two societies have a common cause.

George F. Ledingham.

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IN MEMORIAM: ROSALIND TAYLOR

by **Dorothy Rhodes**, Moose Jaw, Saskatchewan

On its tenth anniversary, March 20, 1967, the Moose Jaw Natural History Society paid homage to its foundress, Mrs. F. B. (Rosalind) Taylor. One year later, at its annual meeting, the Society held a short memorial service for Mrs. Taylor whose untimely death occurred on February 29, 1968.

Mrs. Taylor, born Constance Rosalind Russell on February 5, 1900, in Minerva, Ohio, attended Mount Union Methodist College in Alliance, Ohio, then taught high school in her home state, specializing in Latin and English. On October 7, 1933, she married Frank Butler Taylor of Liverpool, England, who was at that time an engineer with Imperial Oil at Newport News, Virginia. His work brought them to Montreal, Vancouver, London (Ontario), and Ottawa. For the last eleven years of her life, Mrs. Taylor resided with her husband in Moose Jaw. Predeceased by her husband just four months before her own death, Rosalind Taylor is survived by one daughter, Mrs. Robert E. Jenkins of Cuyahoga Falls, Ohio, and four grandchildren.

While living in Ottawa Mrs. Taylor joined the Ottawa Natural History Society and became an ardent bird-watcher. When she and her husband came to Moose Jaw in 1957, one of her first activities was the founding of the Moose Jaw Natural History Society.

She was enthusiastic about all phases of natural history and inspired a love of nature in those around her, especially so in the young people whom she encouraged in the practice of conservation. One of her great ambitions was to gather and permanently record observations made in the Moose Jaw area by early ornithologists and in recent years by members of the Moose Jaw Natural History Society. This culminated in the publication by Leith Knight of *Birds of the Moose Jaw Area* on October 15, 1967. Mrs. Taylor also spent several years gathering records of the occurrence of the Red-



Rosalind Taylor, June 1967

headed Woodpecker in Saskatchewan, and her completed study was published in the *Blue Jay* (24:56-64, June, 1966).

Although she never became a naturalized Canadian, she strove to protect our heritage of wildlife and beauty and prevent us from making the same mistakes that have led to the destruction of many areas of natural beauty in her own country.

Rosalind Taylor had an abiding interest in all intellectual pursuits. She was a valued member of the Wilson MacDonald Poetry Society to which she contributed many fascinating papers. She was a prime mover in the Overture Concert Association, and was active in the University Women's Club as well as a local art group. As a member of the executive of the Saskatchewan Natural History Society, she was a worthy liaison between the provincial and local societies.

Recently, when choosing a quotation for a printed program of the Moose Jaw Natural History Society, Rosalind Taylor turned to one her beloved New England poets, Ralph Waldo Emerson —

"Nature and books belong to the eyes that see them."

And because she opened so many eyes to the beauty of nature, she will be remembered.

ORLAND P. GIBSON 1914 - 1968

by **Angus H. Shortt**, 101 Morier Ave., Winnipeg 8, Manitoba



Orland P. Gibson, about 1963

With the death on January 10, 1968 of Orland P. Gibson, Manitoba lost one of its most highly regarded field ornithologists, a gifted bird artist and a keen botanist.

Orland was born in Winnipeg in 1914. Early in life he showed a keen interest in bird study and spent much time afield, often in company with his father who had a lodge on the Libau marshes at the south end of Lake Winnipeg. Here Orland developed a special interest in waterbirds and shorebirds in particular; these remained his prime favorites throughout his life.

A photographer and commercial artist by trade, he applied his skills in these media to his field sketching, bird painting and wild-flower photography. He became highly proficient in field identification of shorebirds in

all their bewildering variation of plumage. He would spend hours studying a flock through his binoculars which he carried attached to a sturdy tripod



Marbled Godwit, May 16, 1946



in order to free his hands for sketching. Many sketch books were filled with minute details of body contours, head and bill outlines and feather patterns. He had hoped some day to paint a series of Manitoba shorebirds.

Keen of hearing, he was familiar with the songs and call-notes of practically every bird found in and around our marshes and was quick to detect the presence of some strange note.

We recall vividly a midnight expedition into the Libau marshes with Orland and Ralph Fryer on June 30, 1935 to track down the origin of a mysterious night-caller. Armed with flashlights and .410 collecting guns, we stealthily manoeuvred until we converged on the spot where we judged the sound to originate. Luck was with us as a small bird flushed a short distance ahead of us and, held

in the beams of our flashlights, was quickly collected. It proved to be the elusive Yellow Rail (*Coturnicops noveboracensis*). This specimen is now in the collection of the Manitoba Museum of Man and Nature.

Orland flung himself into nature study with a boundless enthusiasm. In later years his sketching and painting centred more on single species of birds; the Whistling Swan and Sandhill Crane are two that come to mind.

Mammals too, became an attraction for him and armed with his binoculars and cameras he covered many miles by car, canoe and on foot to obtain pictures of Moose and White-tailed Deer.

Modest and unassuming, he was reticent to put his sketches and paintings on display—he had many excellent ones of both birds and mammals. He strove for perfection in his work

and was his own severest critic; if some particular part of a painting upon which he was at work failed to please him, that picture remained unfinished. He worked in oils, tempera, water-color and experimented with some of the new acrylic paints, but (at least to the writer) some of his most appealing work was in tempera.

His wife, Gertrude, shared his deep interest in nature and was his constant field companion. Working together they made an intensive study of Manitoba flora from 1956 to 1967, amassing a treasured collection of colour slides. They covered much of southern Manitoba in their search for rare and little-known plants. Orland was ever eager to explore new territory and every side road and trail that would accommodate a car was tackled. He knew more "out of the way" roads and trails than anyone else we have known. A well-thumbed copy of H. J. Scoggan's *Flora of Manitoba* was carried in the field and bore numerous marginal notes—

a testimony to the accuracy of identification which characterized his approach to nature study.

The year 1966 saw the culmination of several years' search for the different orchids native to Manitoba, when they found the last two on their list in the Sandilands area. These were *Malaxis monophylla* and *Malaxis unifolia*, insignificant little plants with tiny greenish-coloured flowers and known by the English name of Adder's Mouth. They reported their find to H. J. Scoggan in Ottawa who confirmed the rarity of the two species.

But the climax was still to come when, during the summer of 1967 they found them again, this time at Scanterbury. On this occasion they collected the plants and sent them to the National Herbarium in Ottawa, two rare additions to the record of Manitoba flora.

Orland was a member of the Natural History Society of Manitoba, the Manitoba Camera Club and the Winnipeg Cine Club.



Slate-colored Junco, April 16, 1934

Sketches by O. P. Gibson

ATYPICAL NESTING OF BONAPARTE'S GULL IN SASKATCHEWAN

by **Robert D. Symons**, Sifton, Saskatchewan

EDITOR'S NOTE: In his "Hours and the birds," published in the fall of 1967, R. D. Symons recalls an interesting event in the ornithological history of Saskatchewan when he relates the story of how he found a nest of the Bonaparte's Gull (*Larus philadelphia*) in reeds in a boggy marsh north of Jackfish Lake in the summer of 1932. This was the first nest record of this species for Saskatchewan. Mr. Symons was at that time stationed at Meota, as field officer of the Department of Natural Resources. In the following year, and again in 1935 with Fred G. Bard of the Provincial Museum of Natural History, this area was revisited by Mr. Symons, and further observations were made and evidence collected of this unusual nesting. One of the coloured plates in Mr. Symons' book shows a pair of Bonaparte's Gulls beside such a nest in the reeds, and both this painting and the author's account of his observations of these birds nesting at Jackfish Lake have provoked considerable interest, since this species of gull has usually been observed to nest in trees.

The renewed interest taken in this breeding record made Saskatchewan naturalists aware that no previous account of Mr. Symons' observations had been published, although the *Blue Jay* (14:80) carried a later report by Fred G. Bard of visits made in 1955 and 1956 to the same area to field-check the Bonaparte's Gulls in "Lamotte's Swamp," as this marsh situated about 10 miles southwest of Glaslyn was known. In July, 1955 Mr. Bard saw one young Bonaparte's Gull flying with adults in a

small slough about one mile south of the swamp, and in 1956 he found one nest containing three eggs. This nest was built on bulrushes of the previous year that had been somewhat flattened by the winter snow, and a sketch of it was made by Fred Lahrman to accompany Mr. Bard's article. The habitat in which the gulls nested in 1956 was also photographed by Lahrman (Figure 1), as well as the nest itself (Figure 2), and a fine painting which he did of the nesting pair of Bonaparte's Gulls at this location now hangs in Mr. Bard's office at the Museum. On the strength of these records, Godfrey (1966) lists the location 10 miles southwest of Glaslyn in defining the breeding range of these gulls in central Saskatchewan.

Because of the renewed interest in these records we asked Mr. Symons to report his original observations in greater detail. The support of Mr. Bard and Mr. Lahrman of the Saskatchewan Museum of Natural History was enlisted, in order to substantiate the details by reference to the Museum's files and specimen collection. We are also grateful to Mr. Bard for allowing us to use his field notes of the expedition that visited the marsh in 1935. Factual details from these notes and from the labels on the specimens in the Museum's collection have been added to Mr. Symons' narrative account.—Margaret Belcher.

It was while looking for Sandhill Cranes' nests in "Lamotte's Swamp"



Figure 1—Lamotte's Swamp, 1956

Photo by F. W. Lahrman

north of Jackfish Lake and south of Glaslyn in the North Battleford area, in the early summer of 1931, that I first noticed a pair of Bonaparte's Gulls and suspected they might be nesting. Of course these gulls had sometimes been seen before in migration in the spring, but we did not think they nested within several hundred miles of this part of Saskatchewan. The only record we had for Saskatchewan was that given by my very good friend and adviser, Mr. H. H. Mitchell in his *Catalogue of Saskatchewan birds* (1924) where he stated that they had been located "apparently breeding" at Big River in the month of June.

It was not until May of the following year (1932) that I was able to visit the swamp again. The valley of the Jackfish Creek is from one-half to one mile wide and consists mostly of level hay land, subject to spring flooding, but in places these meadows give way to boggy areas, through which the creek winds sluggishly, its banks fringed with bulrushes and water willows, while further back, rough clumps of wire grass alternate with small stagnant pools of brown water. Several small semi-connected lakes and some flowing springs add to the general swampy nature of these muskegs. One such tract, covering about a quarter section, was the swamp in which I was interested.

Armed with sketching materials, I set out early in the morning on my search. Scanning the terrain with field glasses, I soon picked up small white dots which I felt sure were gulls. Next, donning hip waders, I proceeded in the direction of a small space of open water in the centre of the swamp, around which the flying birds seemed mostly to congregate (Figure 3). I assumed that these would be male birds, and that their brooding mates would be occupying nests at no great distance. It had looked as if it would be an easy matter to make a bee line to the lake's edge, but once in the swamp itself one seemed almost completely lost, knee-deep in the brackish water and surrounded by the high

tussocks of wire grass, mixed with small silver swamp willow and the pretty little Labrador tea. Occasionally, mounting a quaking hummock, I could catch a silvery gleam from the water ahead, which served to guide me, and so I entered the beds of bulrushes, full of treacherous holes, where the footing had to be carefully felt out before a step was taken. The sun beat down fiercely and the mosquitoes bit wickedly, but the anticipation of an interesting discovery encouraged me to press on.

As I approached the lake, two gulls circled me at some distance. I carefully considered the possibility that these gulls might prove to be the somewhat similarly marked, and much more common, Franklin's Gulls, or secondly, that they might be non-breeding Bonaparte's Gulls. However, their appearance in flight pointed to their being *philadelphia*.

Soon I was among the clumps and rafts of last year's dead bulrushes, through which the present season's growth was pushing upward. These clumps were quite firmly matted and compressed by the weight of the deep snow of the preceding winter and in places they were even firm enough to bear one's weight sitting down. I decided that the birds might be nesting in or on these clumps. Just as I was beginning a systematic search, a gull charged me with a harsh screaming note. She swooped so fast and straight that for a moment I was fearful of being impaled by the sharp bill, but when she was a few feet from my head she put on the brakes and turned straight up, only to check herself in mid-air and swoop back from the reverse direction. I say "she", for I was certain from her actions that this bird was a female, and indeed, the few wheeling, circling birds I had first observed had not changed their direction.

Constantly she uttered her screaming note, much more tern-like than gull-like. I have never heard this species "mew" in the manner of the Franklin's Gull. In the instant that she swerved to pass over my head, I



Photo by F. W. Lahrman

Figure 2—Nest of Bonaparte's Gull in Lamotte's Swamp, 1956

noticed the dark bill, the bright coral legs, and the large amount of white about the "wrist" of the wing, and these points, together with the tern-like note and flight, and the much more slender and delicate build, settled any doubts that I might have held as to the identity of the species.

For over an hour I searched the clumps of bulrushes, but to no avail. By now two other birds, apparently females, had joined the attacker, launching themselves, like her, from out of the blue, and from now on these three swept continuously over our heads, while to add to the general clamour a number of Black Terns suddenly appeared from nowhere and joined them in abusing us, and Marbled Godwits attracted by the disturbance shrieked their defiance, like self-appointed guardians of the marsh.

Finally I gave up the search, after examining hundreds of clumps of bulrushes without result, and returned to the shore of the marsh for lunch before taking up the search again. When I returned, I went to a point a little west of where I had first come upon the open water, keeping my eyes glued on the reed clumps, but again I was taken by surprise and charged by a female gull. This time, however, I stood quietly in the partial conceal-

ment of a clump of willows, and after a few minutes my patience was rewarded by seeing the bird, after a couple of circling flights, suddenly alight with indescribable grace on the summit of a reed clump about 100 yards away. As I watched, a male bird joined her. As soon as he lit, the female again launched herself in the air, leaving him standing statuesquely with folded wings. His mate again circled us, but as I did not move she flew straight to her partner and almost immediately settled down, shuffling her wings and puffing out her breast in the unmistakable movements of a brooding bird.

Exultantly I marked the spot, and slowly approached. The male took flight as soon as I moved, but I was quite close before his mate, who by this time had settled down until only her bill and tail showed over the nest rim, suddenly launched herself at me in the manner which I now expected. In a few moments I stood beside the nest with its three olive eggs with their dark markings.

The nest was a neat affair, unlike the untidy and often damp mass reared by the Franklin's Gull, being a sort of natural hollow in the clump of dead bulrushes, neatly shaped and rounded and provided with a lining

of fine sedges and grasses with a few small willow twigs interwoven. By actual measurement it was three feet and two inches above the surface of the surrounding water, and therefore perfectly high and dry.

Hastily I took out my sketch book and pencil to make a number of quick studies, and I was more than usually careful with my sketches and my

notes because I realized that this would be the first recorded nest of this species for Saskatchewan. For this reason also, I had borrowed a small box camera in order to take photographs, and I was able to photograph the nest (Figure 4). Before leaving the swamp I was fortunate enough to find another nest containing eggs only a short distance from



Sketch by R. D. Symons, 1932

Figure 3—Discovering the nests of the Bonaparte's Gull in Lamotte's Swamp



Photo R.D.S.

Figure 4—Nest of Bonaparte's Gull in Lamotte's Swamp, May 27, 1932

the first, and from my observations I reckoned that there would be no less than six breeding pairs in the swamp.

It was, as I suspected, difficult to persuade others of the authenticity of the record. Accordingly, in the following year (1933) I revisited the nesting site with Conrad Reid of Meota whom I had engaged to help me collect a specimen. I sent this specimen and eggs from the nest to Mr. Fred Bradshaw at the Provincial Museum. [This specimen, collected May 31, 1933 north of Meota by R. D. Symons is preserved as a study skin (Specimen No. 3195) at the Saskatchewan Museum of Natural History. The label indicates that it was a female bird, shot near its nest 18" above muskeg, and also that the nest and three eggs were taken.—M.B.]

Two years later (1935) representatives from the Provincial Museum accompanied me to this spot for further observations, and specimens were again collected. A pair of these birds and their nest with its three eggs were used for a habitat group at the Museum, for which I was commissioned to paint the background. In this habitat group the reeds on which the nest is placed are the original bulrushes taken from the site with the nest.

In 1935 representation was made by the Museum to the Department of Natural Resources to have the quarter section which comprised the major part of this swamp set aside as a bird sanctuary for the chief reason of

offering protection to the small colony of Bonaparte's Gulls which nested there. This request was complied with, and the area suggested gazetted under the name of "Marais des Oiseaux" because this is a French-Canadian settlement. I understand, however, that the sanctuary is no longer in existence, and the breeding site itself needs further investigation to see whether Bonaparte's Gulls are still nesting there in the summer.

FINAL NOTE: The notes kept by Mr. Bard of the field trip made by a Museum party in early 1935 to the Battleford area give further details of the findings of that visit. Dunk (1936) cites these notes: "On May 19th, five Bonaparte's Gulls were seen resting on broken down tule reeds. On June 3rd, Mr. Symons found the first nest, which contained three eggs. Shortly after a second nest was found by Mr. Bard. This also contained three eggs. A second visit to this nest on June 20th showed two young birds and a chipped egg. Three hours later it was observed that the third young bird had just emerged from its shell. These nests were found in isolated clumps of tule reeds and were built on the old matted reeds, the lower part of the nests being constructed of these reeds topped by dead grasses. The nests were compact and well made in the form of a basin and measured six inches across.

"It is of interest to note that the nests of these gulls have usually been found in trees. Although this colony is small, they have evidently nested here for some time in the manner described, as many old nests were found. Photographs were taken and all necessary material collected for a habitat group."

This habitat group, which can be seen at the Saskatchewan Museum of Natural History, is entitled "Lamotte's Swamp Group — Glaslyn." A single Sandhill Crane standing in the marsh is featured in the accompanying panel which describes the group, and the Bonaparte's Gulls only get mention in the list of other species frequenting the marsh. Perhaps for this reason, the unusual nesting site of the Bonaparte's Gulls in the reeds has often escaped notice.

In addition to the pair of birds which appear in the habitat case with nest and eggs, the SMNH collection includes study skins #3195 (Symons' 1933 specimen), #3585 (male), #3586 (female), #3632 (chick), nests #3587, #3633, #3634, and eggs #3588.—M.B.

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VOCALIZATION OF THE VIRGINIA RAIL: A MYSTERY SOLVED

by **E. Manley Callin**, Fort San, Saskatchewan

Certain notes of the Virginia Rail (*Rallus limicola*) have been the subject of an international mystery which began at Cambridge, Massachusetts on June 7, 1889 and ended at Fort Qu'Appelle, Saskatchewan on July 6, 1964 (75 years later!). In the October, 1901 issue of the *Auk*, William Brewster (1901) described some bird notes, rail-like in character, which he had heard in various wet meadows or marshy areas in Massachusetts during five different years from 1889 to 1901 and which were wholly new to him and also to two of his associates. Brewster very aptly described the song as "ending in a shrill, slightly tremulous squeal or crow, given with exceeding emphasis and vigor," indicated that one of the many variations might be phoneticized as "kik-kik-kik-keer" and that the final note was occasionally doubled and sometimes wholly omitted. (Even triple endings have been heard at Fort Qu'Appelle.) Although he went to considerable effort, Brewster was never able to obtain a glimpse of the birds or to identify them, either by sight or sound, and because the song invariably began with a series of "kicking" notes, the bird has since been unofficially dubbed as Brewster's "kicker."

The next links in the chain of events were as follows:

1. Dr. Peter P. Kellogg of Cornell University, Dr. Arthur A. Allen, and others made a night recording of a "kicker" in June, 1937 at a marsh south of Ithaca, New York, and
2. In 1959 Kellogg, Allen and Dr. Roger Tory Peterson published these calls in a recorded album and identified them as those of the Yellow Rail (Kellogg, 1962). This publication sparked some controversy as to what the birds "were not" but did not elicit any strong opinions as to what they "were"; it did, however, point out the pronounced difference between the

song of the Black Rail and that of the "kicker."

In the early 1960's the scene shifted to Saskatchewan with the following events: on May 28, 1961, from 9:30 to 10:30 p.m., I heard two "kickers" calling in the marsh at Echo Lake at Fort Qu'Appelle; on June 16, 1962 several members of the Saskatchewan Natural History Society (including Margaret Belcher and myself) heard the same notes in a marshy area at the west end of Pasqua Lake, which is about 15 miles to the west of Fort Qu'Appelle; in the December, 1962 issue of the *Blue Jay* (20:153) Belcher referred to the 1962 record and, in doing so, added further impetus to the search for the identity of the "kicker." From June 24 to June 26, 1963 Jack Lane of Brandon, Manitoba and Oscar M. Root of North Andover, Massachusetts visited at Fort Qu'Appelle and, although two "kickers" were calling regularly each night, it was not possible to see the birds even with the aid of lights, and the mystery remained unsolved. During the next two weeks, June 27 to July 11, 1963, 18 persons (including seven from Regina on one occasion) took part in the search. Dr. G. D. Barnett made tape recordings on several occasions, but again the singing birds (now found to be four in number) could not be seen or identified. A copy of these recordings was forwarded to Kellogg who, in his letter of February 7, 1964, expressed the opinion that they were indeed the mystery bird which they had recorded in 1937. In the meantime, Fred Lahrmann had reported hearing a "kicker" at the Wascana marsh at Regina on two successive evenings in mid-May of 1962 and, on June 27 and 28, 1963, he and Ralph Carson, both staff members of the Saskatchewan Museum of Natural History, heard one at a small unnamed lake near

Jan Lake, which is about 300 air miles north of Fort Qu'Appelle. Also, Lane and Root, upon returning from Fort Qu'Appelle in 1963, heard a "kicker" from June 28 to June 30 in the extensive Douglas Marsh, near Brandon, Manitoba and it was heard there again by Lane and Hagar in 1964.

Joseph A. Hagar of Marshfield Hills, Massachusetts, retired state ornithologist, had for some years been accumulating reports of the mysterious "kicker" and this had added up to about 27 credible records, mostly near the eastern coast of the United States. The reports from Saskatchewan and Manitoba represented a drastic extension in the apparent range of the "kicker" and on July 3, 1964 Hagar arrived at Fort Qu'Appelle to continue the search. Almost immediately it was noted that, although Brewster's birds in Massachusetts and also the Fort Qu'Appelle birds in 1963 called very steadily in the late evening and during the night, the only bird heard after Hagar's arrival gave very few calls at this time. Hagar then speculated that the bird might be calling in the early morning and, if so, this might provide an opportunity for daylight observation. During the next few mornings Hagar and I were at the marsh before sunrise and on the morning of July 6, 1964 the mystery was finally solved. Shortly after 4:00 a.m. Hagar was deep in the cattails and, after a period of watchful waiting, saw both a male and female Virginia Rail and a chick about half-size. The male had been uttering the usual notes of the Virginia Rail from the cattails about 20 feet away, then gave the "kicker" notes and immediately afterward appeared in plain sight about 15 feet distant. Aside from the difference in time of calling as mentioned above, there were also very pronounced differences in the assortment of calls in 1964; compared with 1963, the "kicker" notes were much fewer and the usual notes of the Virginia much more frequent. Some notes were recorded on tape each day from July

4 to July 6, 1964 and Hagar later took this tape to Cornell University where copies were made.

When one weighs all the factors, including the distribution of the various rails and the association of sounds in the recordings and field notes from Fort Qu'Appelle it is virtually impossible to consider the "kicker" as anything else but the Virginia Rail. The climaxing factor, of course, is Hagar's observations on July 6, 1964 but one of the contributory points which should be mentioned is that, during the many hours of listening to and sometimes recording the "kicker" notes in the Fort Qu'Appelle area from 1961 to 1964, there were never any sounds resembling the measured, tapping notes attributed to the Yellow Rail and with which I am familiar.

However, the answer to the 75-year-old mystery has raised as many questions as it answered! Kellogg, in his letter of August 24, 1964, offered congratulations and summed up the situation as follows: "There still remains the problem of explaining why the sound, if it comes from a Virginia Rail, is heard so seldom. Certainly, in this area [Ithaca, New York], the Virginia Rail could be called common and I believe that it is as abundant here as anywhere in its range, yet the sound was heard only the one time. If you had heard the bird call only once or twice, in all your experience, it would have fitted nicely into the picture. However, your recordings show conclusively that this seems to be a definite pattern of the species repeated over and over, and heard day after day in the right locality. This makes the sound still very much of a mystery."

It should be pointed out that, in at least two years (1889 and 1898), the "kicker" notes were heard regularly in Massachusetts and also at Fort Qu'Appelle in two years (regularly in 1963 and irregularly in 1964) but those were the only years in which there was fairly close observation at appropriate times in the latter area. One should also add that, although

the usual "kidick" and "wak, wak" notes of the Virginia have been heard in 11 recent years in various parts of our area, they are seldom uttered steadily. A close study of the vocalization of other rails, such as the Sora, Yellow and Black, in various areas of our continent might also produce some surprising inconsistencies. It could be many more years before the status (is it the real song?) and prevalence of the "kicker" notes are determined. Probably the greatest need at present is a complete analysis of the many reports to date; it is rather likely that this would reveal erratic vocalizing by the rails and also erratic attention by observers. Certainly it would be difficult for observers to maintain a continuous vigil in the various areas and over one or more complete nesting seasons but this may be necessary in order to obtain the complete answer.

Credit is due to many people in the search for identity of the "kicker" but very special credit should be given to Brewster, who first reported it, and to Hagar, who conceived the successful approach in solving the mystery. Others who deserve special mention are Kellogg, Allen, Peterson, Barnett and Belcher, who contributed most valuable recordings and/or articles, to Lane and Root, who were very prominent in the search, and to Doug Wade, who edited the Fort Qu'Appelle recordings of 1963.

NOTE: In a long letter dated April 8, 1968, Hagar has advised me that observations at Concord, Massachusetts in 1965, at Troy Meadows, New Jersey in 1962 (not reported to Hagar until 1967), and at Camden, New Jersey in 1967, strongly confirm the conclusions reached at Fort Qu'Appelle in 1964.

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CINNAMON TEAL AT FORT QU'APPELLE

by **E. Manley Callin**, Fort Qu'Appelle, Saskatchewan

At about 4:00 P.M. on May 1, 1968, as I was leaving Fort Qu'Appelle to return to Fort San, I followed my frequent custom of checking for a few minutes at the Fort Qu'Appelle dam. It was a very windy, dusty day and a flock of about 55 ducks were resting or swimming about on the river in the shelter of the willows on the leeward side. It was immediately noted that the flock included a number of Blue-winged and Green-winged Teals, neither of which I had seen previously this spring, and that Lesser Scaups were predominant. My attention was then drawn to a dark bird which showed extensive areas of pronounced reddish colour when it turned about and I quickly realized that I was looking at the first Cinnamon Teal I had ever seen (it had somewhat the colour but very obviously did not have the markings or shape of the Ruddy Duck). Although the Cinnamon Teal was moving among the Blue-winged Teals, it soon became obvious that he had a mate, as a

female teal was close ahead, behind or beside him almost constantly and the male Blue-wings were showing no interest in this female. I then contacted Fred Dunk, the local druggist, who also came and viewed the pair of Cinnamon Teals. For many years Fred had hunted and observed waterfowl in this area and in other parts of the province and he states that he has never before seen this species in Saskatchewan, although he has seen numbers of this western bird when visiting San Diego, California. *Birds of Regina* (1961) lists a number of sightings of Cinnamon Teal and the furthest north sighting, near Battleford in 1964, is given by H. C. Moulding (*Blue Jay*, 22:154).

Although there was very limited time for observation, the flock had few females. The flock was as follows: Blue-winged Teal, 15 male; Green-winged Teal, eight male, no females; Lesser Scaup, about 30 but apparently only about half a dozen females; Cinnamon Teal, one male and one female.

GOLDEN EAGLE HUNTING TACTICS

by **David R. M. Hatch**, Oak Lake, Manitoba

Oak Lake, Manitoba, has been the wintering home of a few Golden Eagles (*Aquila chrysaetos*) during the past few years. They range widely in this vicinity and can frequently be seen in the least heavily populated areas. Farm homes are well scattered over the countryside, which is composed of marshes, open hay meadows and pasture fields, besides stands of trembling aspen bush. This bush habitat covers the sandhill ridges that run in a northwest-southeast direction across the prairie. The combination of woods, marshes, and open country seems to provide an ideal area for the Golden Eagle, and over the past three years I have had an excellent opportunity to observe their hunting techniques. The species, as a general rule, is wary and seldom comes near the farm homes, so opportunities for studying it are scarce. If an eagle knows humans are close, it soon moves to a safer location. Since during the duck and deer hunting seasons they are shot occasionally, they become very cautious when humans are in the vicinity. The only time I have been able to observe Golden Eagles hunting is when the "chase" is actually in progress, and at such time they seem to pay little or no attention to anything but their prey. Consequently the following observations are chance sightings made when I was in the right spot at the correct time.

On December 24, 1967, I was driving along a country road 10 miles south of the town of Oak Lake when I saw two Golden Eagles attacking a Red Fox (*Vulpes fulva*). The fox was about 200 yards from the road and running parallel to it across open country. The eagles, an adult and an immature, were working as a team. The immature eagle would dive-bomb the fox from behind, and just before it reached the fox the fox would turn and jump at the eagle. At this moment

the adult eagle would hit the fox in the area of the shoulder blades just posterior to the base of the neck. The force of the blow would knock the fox down but it would get up and again continue running southward parallel to the road. Probably it was intent upon reaching cover one-quarter of a mile distant. The eagles would immediately start another attack with the immature always coming in first and the adult reaching the target area only seconds behind. The immature came in at only about 25 yards off the ground, while the adult came in high and at about a 120 degree angle from the immature. The adult was probably about 150 yards high when it started its descent and came at the fox silently, whereas the immature made loud cries as it flew toward the fox. This resulted in drawing the fox's attention to the immature and therefore it never saw the adult eagle before it struck. This pattern was repeated four times while I watched, and on each occasion only the adult hit the fox. Each time the fox was knocked flat in the snow, and he was so slow getting on his feet after the third tremendous blow that he was unable to move more than 10 yards before the fourth attack, which proved terminal. On this occasion, the adult sank its talons into the shoulder region and held on. There was a fearful struggle in the snow with the immature eagle joining the battle and actually attacking the fox. What happened exactly is anyone's guess as all that could be seen was the confused mass of fox and eagles in a melee further blurred by the flutter of wings. The immediate result, however, was the death of the fox. After a few minutes I drove off leaving the eagles sitting on their well-earned prey. This was certainly an organized attack conducted with such efficiency that I have no doubt a similar tactic had been carried out

several times prior to this occasion. As the attack was actually in progress when I arrived on the scene, I am unable to state how long it had been taking place, but I assume it had only just begun as the fox was still very fresh. Following the second attack that I witnessed however, the fox showed definite signs of being hurt and may have been lame as a result of the blow.

An earlier Golden Eagle-Red Fox incident that I witnessed was on February 6, 1966. On this occasion I was with Chuck Lacy, a biologist with Ducks Unlimited, and the observation was made near the village of Bellevue, which is southwest of the lake called Oak Lake. It was just before sunset and we watched through 7 x 50 binoculars at a distance about one-quarter of a mile. A fox was sitting on a small knoll and surrounding the fox were three Golden Eagles. They were spaced as though they were marking the corners of a triangle with the fox at the centre. They would sit quietly for a few minutes, then the fox would make a sudden dash across the open prairie. However, before the fox got more than 100 yards, two eagles would swoop in front of him causing the fox to turn around and run back to the knoll. The eagles remained right behind the fox as he returned to the knoll, then again took their triangular point positions. All four then sat quietly waiting for one another to move. The eagles appeared to tempt the fox into attempting to depart, as every once in a while one eagle would fly from its position and land right beside one of the two remaining eagles. The fox would again make an immediate break but always the results were the same: the two eagles chased it back to the knoll. This performance was repeated several times, but we could not wait for the ultimate outcome as darkness was fast approaching and drifting snow was making driving hazardous on the lonely country roads. It seems doubtful that anything came of this incident as the night was fast approaching and no attempt had yet been

made to kill the fox. All three eagles chased the fox at one time or other, but one always remained on the knoll. Whether this was just a game for the eagles or an attempt to cause the fox to become fatigued so it could then be killed, one can only guess.

A third observation of a Golden Eagle pursuing its prey was made December 26, 1962. On this occasion the participants were an immature Golden Eagle and a White-tailed Jack Rabbit (*Lepus townsendi*). We were driving along a little-used country road that had a fence running along its eastern edge. We first saw the eagle at about 150 yards distance flying about 30 yards off the ground. Suddenly it dropped and seized a rabbit crouched in the snow. The eagle was able to lift the rabbit only two or three feet off the ground before its victim managed to struggle loose. The rabbit then darted across the open prairie in a zig-zag fashion moving constantly from the eagle's left to its right and back again. The eagle flew straight as an arrow, making no attempt to follow the rabbit's pattern, yet always keeping close to the rabbit. Once when the rabbit crossed just in front of the eagle, the eagle intercepted it and caught it in its talons, but again the rabbit squirmed free almost immediately. Within a few seconds, it had reached the fence paralleling the road on which we were stopped. The rabbit then hopped toward the car, being careful to remain against the fence. The eagle was unable to swoop down and capture it, being evidently unwilling to risk dashing into the wires. As the rabbit moved to within a few feet of the car, the eagle flew from post to post until it was only six posts from our car (a distance of approximately 100 feet). This was an extremely bold act on the part of both the rabbit and the eagle, and it must have been prompted out of sheer fear of the eagle in the rabbit's case and near starvation in the case of the eagle. Both the rabbit and the eagle sat quietly, each appearing to be waiting for the other to move. Suddenly the rabbit dashed into

the open and across the snow, where it was quickly caught, for keeps this time. After sitting on the rabbit for a minute, the eagle commenced feasting on its prey. It is interesting to note that the rabbit managed to escape from the eagle's grip twice during the early stages of the chase. Why? One can only speculate, but three possibilities occur to me. It was a bitterly cold day with a strong wind and the wind might have affected the eagle's hold on the rabbit by upsetting its balance. The eagle was an immature and thus probably not exper-

ienced in capturing rabbits. The rabbit appeared big and healthy and may have been nearly too heavy for the young eagle.

These observations of predation by eagles are supported by accounts in A. C. Bent's *Life Histories of North American Birds of Prey*; Golden Eagles were recorded taking a four-point White-tailed Deer, Pronghorn, and foxes.

I would like to thank Dr. R. F. B. King, Dean of the Faculty of Arts at Brandon University, for his assistance with this article.

COLLECTIVE PARENTAL CARE BY TREE SWALLOWS

by **Wayne Miller**, 2 Almond Crescent, Brandon, Manitoba

On July 3, 1966 Mr. John Lane noted two male Tree Swallows (*Iridoprocne bicolor*) feeding nestling swallows in a nest box several miles south of Chater, Manitoba. Mr. Lane took photographs in order to record this unusual incident of two males attending the same nest. A year later I made similar and related observations which form the basis for this note.

On July 16, 1967, at nest box 902 (Brandon Junior Birders' Nest Project) located to the northwest of Oak Lake, seven adult swallows defended the three-day-old young upon my close approach to the site. Three days later (July 19) when an Eastern Kingbird (*Tyrannus tyrannus*) perched near the box, a female swallow vigorously pursued it, urged on by two male swallows. Both of the latter then took flight and escorted the female back to the box, at which time a second female entered the nest. The intruding pair of swallows appeared strongly possessive and finally the "proper" male gave chase, apparently confused as to which was his mate, for a third female had appeared on the scene and had entered the box.

At another site south of this location, also near Oak Lake and on the same date, nine adult swallows (six

males and three females) were found perched at nest box 1159. These birds were all aiding the six fully-fledged young to fly, and were coaxing the remaining three young from the box. I took one bird from the nest and released it, whereupon it took flight for the first time, followed and assisted by four adult male swallows.

I suspect, judging by the above observations, that for various reasons, including a scarcity of nesting cavities, many pairs of swallows are unable to nest, or have had an unsuccessful nesting. These birds, which retain the parental instinct, encroach on nesting pairs and aid with the parental duties, including feeding of the young and defense of the nest.

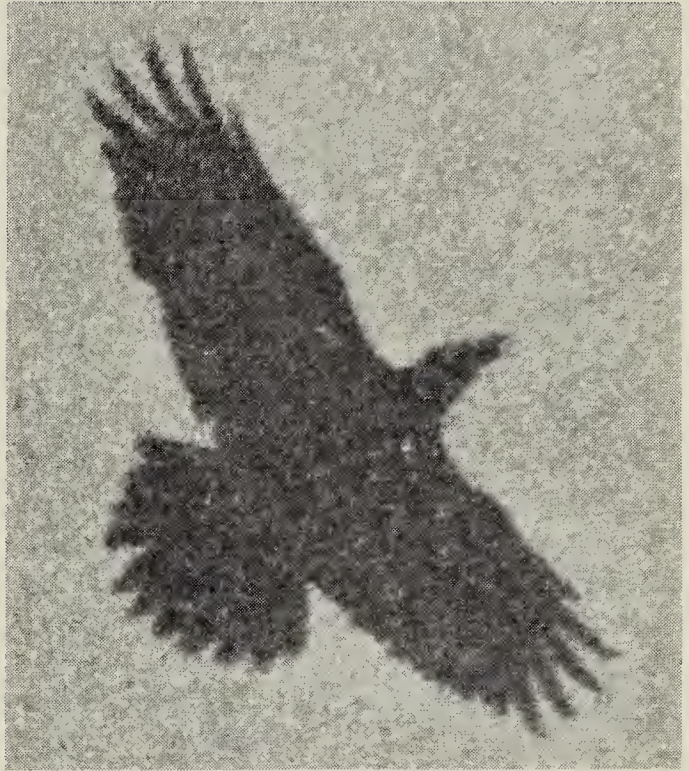
EDITOR'S NOTE: Volume two of "Studies in the life history of the Song Sparrow" (Dover edition, 1964), by Mrs. Margaret M. Nice, contains a discussion of this subject under the title: "Helpers at the nest." A variety of species have been observed responding to the begging behaviour of young of other species by feeding them. "Unmated helpers" of the same kind are also frequent and in some species one or more helpers occur fairly regularly. Extra birds of either sex have been previously recorded, for example, feeding at nests of the Tree Swallow, European Barn Swallow (*Hirundo rustica*), and Violet-green Swallow (*Tachycineta thalassina*). It would be valuable and instructive to have further observations of this interesting behaviour in the Tree Swallow, particularly if it were possible to follow the details of its development in a given situation.

A COMMON RAVEN NEST IN ALBERTA'S ROCKY MOUNTAINS

by **Philip S. Taylor**, 7326 - 118A Street, Edmonton

On May 31, 1967, while working for the National Museum of Canada, I found and photographed an active Common Raven nest west of Turner Valley in extreme southwestern Alberta. The general area, varying between 5,000 and 6,000 feet in elevation, is characterized by immature lodgepole pine forests, moist flats covered by willow and alder, and a few steep rocky outcrops, all drained by two major creeks. The nesting site was on a cliff overlooking Gorge Creek, and was approximately two miles west of the University of Alberta's biological station in the Bow River Forest west of Turner Valley.

The nest faced west and consisted of a mass of whitewashed sticks, over two feet in diameter, hung on a ledge under overhanging rock. It was 25 feet up the cliff, six feet from the top, and was partially obscured from view by a poplar tree. White droppings streaked the cliff face immediately below a number of favoured perches, apparently used by the adults, and



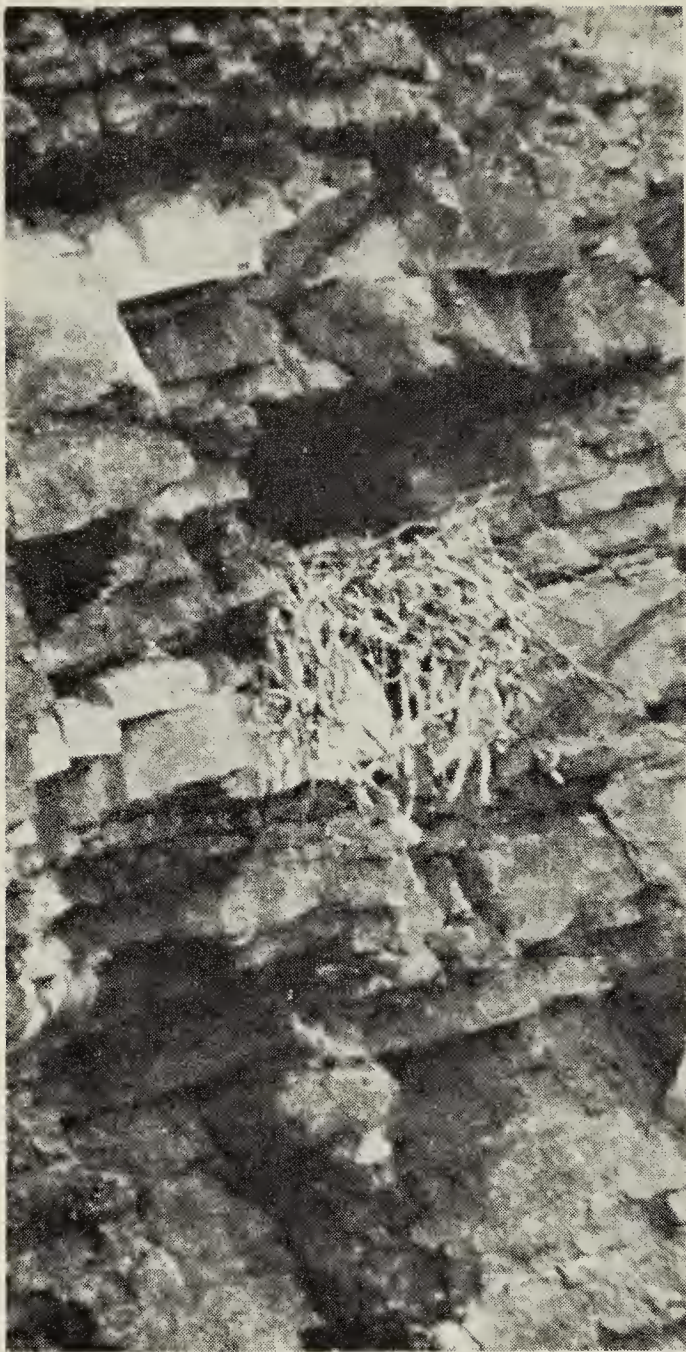
Common Raven

the nest. Bones and sticks were among the rock debris at the foot of the cliff.

Noisy caws and croaks from the young ravens were heard even before



Common Raven nest site in southwestern Alberta



Common Raven nest site

the nest or parents were seen. The extremely keen-sighted adult at the nest (perhaps the female) detected my approach and flew to a nearby tree voicing its concern. Soon the other adult arrived and for 30 minutes both birds either soared on horizontal wings over the area or sat on prominent trees uttering harsh "crawks" after which their excitement waned and they left. The young until now had huddled in the nest but with the threat "gone" they became curious. They exercised their wings or merely watched my movements which, if too noisy or quick, sent them scrambling to the back of the nest and halted any vocal encouragement they had been giving me.

Personnel from the R. B. Miller Biological Station later established that there were five young in the nest. One young taken from this nest proved to be a very clever though mischievous pet. In August it was found dead, apparently shot. Through shooting and indiscriminate poisoning, many ravens die, even though their scavenging habits make them decidedly useful to man. One individual that I watched flying low along a forestry road one morning seemed so preoccupied with searching for food, perhaps road-killed animals, that it did not veer away until it was within 100 feet of us.

Ravens seem to have increased in numbers in Alberta's "Rockies" during the past 10 years. Young ravens recently out of the nest have been observed in this southwest portion of Alberta by competent observers (Salt and Wilk, 1966. *Birds of Alberta*) but, to my knowledge, this constitutes the first record of ravens nesting in that area.

THIRD RECORD OF SCISSOR-TAILED FLYCATCHER IN ALBERTA

by **Spencer G. Sealy**

Department of Zoology, University of British Columbia, Vancouver

On June 22, 1964 I observed a Scissor-tailed Flycatcher (*Muscivora forficata*) on a telephone wire near the South Saskatchewan River, about 10 miles north of Bow Island, Alberta. It was seen hawking insects on several occasions.

There are two previous records of this species from Alberta, one seen at Claresholm on August 20, 1943 and a second observed at Fort Chipewyan on June 17, 1952 (Salt and Wilk, 1966, *Birds of Alberta*).

This observation was made while I was employed with the Alberta Department of Lands and Forests, Fish and Wildlife Division, in the summer of 1964.

NOTES ON THE BURROW ECOLOGY AND FOOD HABITS OF THE BURROWING OWL IN SOUTHWESTERN NORTH DAKOTA

by **Ted R. James** and **Robert W. Seabloom**, Department of Biology,
University of North Dakota, Grand Forks, North Dakota

A sizeable population of the Burrowing Owl (*Speotyto cunicularia*) occurs on the prairies of southwestern North Dakota. During the summer of 1964, the burrow ecology and food habits of this owl were studied on these semi-arid mixed grass prairies. Observations were made at 15 burrow sites in Bowman, Billings, and Slope counties, and owl pellets were collected from eight active burrow systems in Slope County during July and August. The mammalian, avian, and insect remains found in these pellets were identified using standard techniques and comparative specimens.

Burrowing Owls were observed to use abandoned badger and prairie dog holes. These burrows were on flat terrain or well drained gentle slopes, and were associated with grazed pastures. There was no evidence that the owls had excavated their own burrows, or had enlarged or modified the excavations of other animals.

The numbers of individual holes used by owl families varied from two to 10. In addition to a main burrow or nest hole, most burrow sites were found to have one to three satellite or surrounding holes. The nest hole was always the largest and received the greatest use. Satellite holes varied from small unvegetated depressions in the surface, to larger excavations nearly the size of the nest hole, and were 25 to 75 yards from the main burrow. Debris and rejected pellets were sparse in the vicinity of these satellite holes, which were apparently used by adult owls as resting and observations posts. When owl families were approached on foot, any juveniles would retreat within the nest burrow, while the adults would invariably fly to one of these other nearby holes.

All main burrows contained debris. Those holes receiving the greatest use contained a thick accumulation of excrement, feathers, fresh and disintegrated pellets, and bits of cow dung. Evidence indicated that once owls took possession, they made no attempt to clean a burrow system. They apparently regurgitate pellets anywhere in and about the burrow area, since pellets were found not only around the burrow, but also well inside the entrance.

Roberts (1932) reported that jack rabbits are the first to occupy abandoned badger dens, with Burrowing Owls using these holes after the jack rabbits have relocated. He further indicated that when owls take possession, they proceed to clean the burrow system, and heap up the rabbit leavings before the burrow opening. Our observations do not support this suggested tenant succession. Owls apparently did little burrow improvement or sanitation; jack rabbits, however, were infrequent users of these burrows. Jack rabbits also often used elevated badger mounds as observation points and dusting areas, which may explain the presence of rabbit pellets in the vicinity of these mounds.

Burrowing Owls have been reported to have a wide spectrum of foods, including larval and adult insects, small mammals, various birds, and fish, in central Iowa, Minnesota, and the eastern Dakotas (Baird, et al., 1874; Roberts, 1932; Scott, 1940; Schmid, 1959; Grant, 1965). Our study supplements those of previous workers, and provides information on the food habits of this species in another area.

The analysis of the contents of 42 Burrowing Owl pellets is presented in Table 1. No attempt was made to

TABLE 1. Prey of the Burrowing Owl, based on analysis of 42 pellets from Slope County, North Dakota.

	Number	Relative ¹ Frequency
Mammalia		
Rodentia		
Sciuridae		
<i>Citellus tridecemlineatus</i> Thirteen-lined		
Ground Squirrel	1	....
Heteromyidae		
<i>Perognathus fasciatus</i> Olive-backed		
Pocket Mouse	2	....
<i>Dipodomys ordii</i> Ord Kangaroo Rat	1	....
Cricetidae		
<i>Peromyscus maniculatus</i> Deer Mouse	1	....
<i>Microtus pennsylvanicus</i> Meadow Vole	5	....
Aves		
Passeriformes		
Fringillidae	1	....
Insecta		
Orthoptera		
Acrididae		
Cyrtacanthacridinae Spur-throated		
Grasshopper .....	....	1
Oedipodinae Band-winged Grasshopper....	....	2
Coleoptera		
Carabidae Ground Beetles		
<i>Pasimachus</i> sp. ....	....	5
Silphidae Carrion Beetles		
<i>Nicrophorus</i> sp. ....	....	3
Tenebrionidae Darkling Beetles .....	....	6
Scarabaeidae (Scarabaeinae) Scarab Beetles		
<i>Canthon</i> sp. ....	....	4
Unknown Coleoptera — 12 species ² .....	....	7

¹ Relative frequency of insects rated from 1 to 7.

² 12 different beetle elytra indicated unknown species.

determine the number of each species of insect; however, the relative amounts of insect material were recorded. While predation on vertebrates was recorded, the mid to late summer diet of the Burrowing Owl consisted predominantly of insects, with grasshoppers comprising the greater share of the prey. Frequently pellets consisted almost exclusively of grasshopper remains. Carrion beetles, ground beetles, and other moderate to large size coleopterans made up the remainder of the insect diet. Pellets containing insects also contained considerable amounts of

grasses, other plant material, and grains of sand. The incidence of these substances in pellets may indicate that this owl preys primarily on resting insects rather than on insects in flight.

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SASKATCHEWAN BIRD BANDERS*

F. J. HARTLEY FREDEEN OF MACRORIE

by C. Stuart Houston, 863 University Drive, Saskatoon

Hartley Fredeen obtained a banding permit in 1938 and banded on his parents' farm near Macrorie, Saskatchewan, until the spring of 1944. Altogether, with the help of other members of his family, he banded about 1500 individuals of 49 species. Some of the more interesting species banded included the Willet, Upland Plover, Sharp-tailed Grouse, Red-shafted Flicker, Sprague's Pipit, and Sharp-tailed Sparrow. The smaller birds were caught chiefly in funnel traps and drop traps whereas crows and hawks were banded as nestlings.

From this banding, there were at least 27 recoveries. Mallards travelled to Saskatoon, to Kathryn, Alberta, to Glenora, Manitoba, and to Sugar City, Colorado. An American Widgeon was caught uninjured by a dog that same fall near Salt Lake City, Utah and released unharmed. A Common Grackle was found dead over a year later near Anerly, Saskatchewan, while others were shot in Arkansas and Mississippi. A Loggerhead Shrike banded August 21, 1938 was found dead near Paul's Valley, Oklahoma on December 20, 1938. A nestling Barn Swallow was found dead the following June near Courval, Saskatchewan and another was caught by a cat near Cadillac, Saskatchewan before June 1, two years later; they may have been nesting 90 and 135 miles, respectively, south of their hatching site. Another Barn Swallow was found dead in fall migration near Volga, South Dakota. A Western Meadowlark was shot near Arcadia, Oklahoma, and two Red-winged Blackbirds were found near Ashby and Dumont, Minnesota.

A Brewer's Blackbird was found dead two years later near Tramping Lake, Saskatchewan and a Savannah Sparrow was caught by a cat west of Lucky Lake, Saskatchewan, the same fall. Crows were shot in South Dakota, Nebraska and Oklahoma.

The recoveries of greatest interest are those of two Marsh Hawks listed in the March 1968 *Blue Jay*, and the three Swainson's Hawks listed in this issue. The Swainson's Hawk recovery from Rosario, Argentina, is the farthest south recovery of any bird of any species ever banded in Saskatchewan.

Hartley's early interests led him to a career in biology. His summers while a University student were spent in fisheries research in Saskatchewan and the alpine lakes of Alberta. In 1942 when the University of Saskatchewan made a survey of the resources of the Big River area of Saskatchewan, Hartley was delegated to prepare the report on the birds.

He is now an entomologist at the Canada Agriculture Research Station on the Saskatoon campus and specializes in studies of pest species of insects that inhabit rivers. He has just completed a project on the St. Lawrence River in Quebec and is now involved with a project on the Athabasca River. He has been a member of the Saskatchewan Natural History Society since its inception.

*This is No. 9 in a series of biographies of Saskatchewan Bird Banders by C. Stuart Houston.

INFORMATION WANTED

Anyone finding a Ferruginous Hawk nest anywhere in the province or a Swainson's Hawk nest within 150 miles of Saskatoon or 50 miles of Regina or Yorkton, please write Dr. Stuart Houston at 863 University Drive, Saskatoon.

To date, we know virtually nothing of the movements of the Ferruginous Hawk.

RECOVERIES OF SWAINSON'S HAWKS BANDED IN SASKATCHEWAN

From files of Canadian Wildlife Service

Notes and map by **C. Stuart Houston**, 863 University Drive, Saskatoon



Recoveries of Swainson's Hawks banded in Saskatchewan.

Note: Squares represent direct recoveries (same year).

Circles represent subsequent years.

The migration pattern of the Swainson's Hawk is slightly to the west of that of the Red-tailed Hawk, but otherwise is very similar (*Blue Jay* 25:111, Sept. 1967). Apart from Reuben Lloyd of Davidson, who had two recoveries from only three banded, Charles F. Holmes of Dollard had the highest recovery rate with five recoveries from 16 birds banded (31%). On the other hand, George H. Lang of Indian Head banded 19 and had no recoveries to appear in the following list. The proportion of "direct" recoveries (birds killed the same year as banded) is remarkably low, comprising only three of the first 14 recoveries and only seven of the total of 21.

A hawk banded by Hartley Fredeen, shot in Alberta 11 years after banding, exceeds the previously published longevity record for this species by nearly four years (*Ring*, 3 (34) : 178, Feb. 1963).

The recovery from Selma, Alabama is the only record for this species for that state and justified the inclusion of the Swainson's Hawk in Imhof's *Alabama Birds* (University of Alabama Press, 1962). The recovery of one of Hartley Fredeen's hawks from Argentina, although from the known wintering grounds of this species, is the furthest south recovery of any bird banded in Saskatchewan.

Banded by R. H. Carter, Jr., Muscow, Sask. (504-1035) (3 banded):
 Aug. 10/24. Shot Sept. 18/26 (2 yr.) Ellendale, N.D. (460-0983).

Banded by Reuben Lloyd, Davidson, Sask. (511-1055) (3 banded):
 Aug. 14/31. Found dead May 9/34 (-3 yr.) in Nebraska (420-1023).
 Aug. 14/31. Shot Nov. 24/32 (1 yr.) Anson, Texas (324-0995).

Banded by Chas. F. Holmes, Dollard, Sask. (493-1083) (16 banded):
 Aug. 1/32. Shot Sept. 28/32 (direct) Stacey, Mont. (454-1055).
 July 12/34. Shot April 21/40 (-6 yr.) Ray, N.D. (482-1031).
 Aug. 4/34. Shot Aug. 4/37 (3 yr.) Thoeny, Mont. (485-1065).
 Aug. 12/34. Shot Oct. 12/34 (direct) Clinton, Okla. (353-0985).
 July 12/36. Shot May/38 (-2 yr.) White Bear, Sask. (505-1081).

Banded by Ralph O. Hedlin, Renown, Sask. (513-1052):
 July 12/38. Shot Aug. 13/38 (direct) Farrerdale, Sask. (513-1055).

Banded by W. F. Hammond, Cupar, Sask. (505-1041) (5 banded)
 July 12/39. Shot May 21/40 (-1 yr.) La Bolt, S.D. (450-0963).

Banded by F. J. H. Fredeen, Macrorie, Sask. (511-1070):
 July 7/40. Shot May 10/41 (-1 yr.) in Oklahoma (355-0992).
 July 21/40. Shot Dec. 23/41 (1 yr.) Estancia, Cordoba, Argentina
 (33° south 62° west or -330-0620)
 July 21/40. Shot Sept. 8/51 (11 yr.) in Alberta (520-1100).

Banded by Dick Bird, Avonlea, Sask. (500-1050):
 July 9/41. Shot July 19/45 (4 yr.) Truax, Sask. (495-1045).

Banded by C. Stuart Houston (50 banded):
Near Yorkton (511-1023 and 515-1020):
 July 6/46. Shot before 10/46 (direct) Selma, Alabama (322-0870).
 July 10/53. Trapped Oct./53 (direct) Whitehall, Wis. (442-0911).
Near Dilke, Sask. (504-1051):
 July 31/55. Shot before Aug. 11/56 (1 yr.) Ree Heights, S.D. (453-1033).
 July 31/55. Shot May 10/56 (-1 yr.) Tripp, S.D. (431-0975).
Near Saskatoon, Sask. (520-1065 and 515-1061):
 July 5/66. Shot Aug. 13/66 (direct) Saskatoon, Sask. (520-1063).
 July 10/66. Shot Aug. 7/66 (direct) Bradwell, Sask. (515-1061).

Banded by Wm. Anaka, Spirit Lake, Sask. (513-1024) (8 banded):
 July 13/58. Band obtained April 19/59 (-1 yr.) in Texas (291-0982).
 (Note: 513-1024 means 51° 30' north and 102° 40' west)

CLIFF-NESTING COMMON MERGANSER AT URANIUM CITY

by Frank A. Heidelberg, 2317 East 17th St., Sioux Falls, S.D.

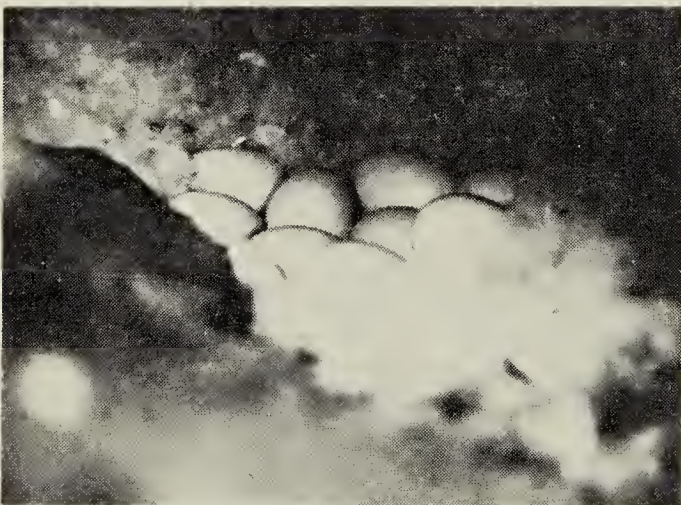


Cliff-nesting Common Merganser at Donaldson Lake, Uranium City, Saskatchewan, June 12, 1966

In 1966 and again in 1967, I found a Common Merganser nesting on a cliff on the edge of Donaldson Lake, eight miles northeast of Uranium City. R. W. Nero (1963. *Birds of the Lake Athabasca region, Saskatchewan*. S.N.H.S. Spec. Pub. No. 5) reported finding mergansers which were apparently nesting on a cliff at Carswell Lake to the south of Lake Athabasca, but he was unable to find

a nest. Thus, this is apparently the first definite observation of cliff-nesting mergansers for Saskatchewan.

Donaldson Lake is accessible by car or truck via a fair mining road to some claims in the area. Many Uranium City residents fish the lake which abounds with lake trout 12 to 14 inches long. The cliff is on the southwest end of the lake where the access road meets the lake. On June 17, 1966, I scaled the cliff, which was about 110 feet high, to check a nest near the top that appeared to be a defunct raven nest. While I was resting in the deep shade of a boulder about half-way down the cliff, I saw a merganser coming in off the lake flying almost right at me. To my surprise she entered a hole about 10 feet from my position. Checking, I found her on a nest near the opening, but she immediately retreated into a deep recess back in the cliff; from this point of security she hissed vigorously.



Eggs of Common Merganser, Donaldson Lake, June 17, 1966

By removing a few rock chips I was able to allow enough light in to photograph the nest; I also used some flash bulbs. I went back for some more pictures about two weeks later and was delighted when, upon leaving the nest, she exposed a complete, newly-hatched brood. I had time for only a couple of exposures before she had clucked all the downy young back to join her in the safety of the deep crevice. I did manage to reach in and grab the last of the retreating downy fluffs; my co-pilot, Ralph Schafroth, held it for some pictures and we also posed it on a rock before giving it back to its mother.

In late August I again revisited this nest hole and carefully plugged the retreat back into the cliff with rock chips. My purpose was to have the mother merganser at the mercy of my camera should she return to use this nest site again in 1967.

It worked — I visited the nest site on June 12, 1967 and there she sat on a full clutch of eggs. The only escape route now left was "out" but she made no attempt to leave.



Photographing nesting
Common Merganser, Donaldson
Lake, June 12, 1967

I returned several times for pictures and she would even allow me to arrange her more photogenically on the nest. She never once made any attempt to grab my bare hands with her formidable hooked bill. In photographing the merganser I would first remove a six-inch wedge of rock from the opening to allow light for the picture; even so the view was crowded. After each photo session I would carefully replace the rock wedge, reducing the nest-hole to its original small opening.



Photo by F. A. Heidelbauer

Cliff at Donaldson Lake containing nest of Common Merganser

June, 1968

CAPTURING ANCIENT MURRELETS BY NIGHT-LIGHTING

by **R. Wayne Campbell**, 5536 Hardwick Street, Burnaby 2, B.C.

Introduction

Capturing most birds today for the purpose of banding for ecological and distributional studies is not too difficult a task. Over the years there have evolved cannon nets and funnel traps for waterfowl, verbail-pole and bal-chatri traps for raptors, drop nets for shorebirds and mist nets for passerines. Few capturing devices, however, have been developed to aid the bander interested in seabirds, notably Alcids (diving seabirds such as murrelets and auks). This neglect can be attributed to various things.

Ancient Murrelets, like most true seabirds, nest in colonies on the heavily forested islands along the outer north coast of British Columbia. Rough and inhospitable littoral waters make landing on many islands hazardous and therefore inaccessible, and constant winds and dense coastal vegetations make setting up and operating traps and nets impracticable. Hence there has been little interest generated among banders in visiting seabird colonies.

The most perplexing problem in capturing Ancient Murrelets, however, is the habits of the seabirds themselves. The murrelets spend most of their lives at sea, venturing to land only during the summer months for nesting activities. During this short terrestrial visit banders must attempt to gather as much information on the birds as possible. Capturing the murrelets for banding would be simple if they nested, like gulls and terns, in open spaces. But murrelets are burrow nesters, each pair excavating a tunnel in the soft soils under tree roots, sometimes to a length of six feet. Occasionally birds can be reached in their burrows and extracted but this usually results in bent and broken feathers. Also, burrows could be shoveled out but this is too time consuming and leads to desertion by the adults

and consequently is damaging to the colony.

To add further to the problems of capturing Ancient Murrelets, the birds exchange incubation duties under the cover of darkness. Seldom then are both adults together on the breeding grounds. While one parent incubates in the safety and protection of the nest chamber the mate is far at sea feeding. It is during this nocturnal flight to the colony that Ancient Murrelets can best be captured—by night-lighting.

The work covered in this paper was conducted by Norman Clarkson, Ken Kennedy, Lowel Orcutt and the writer, on southern Langara Island (Queen Charlotte Islands) in northwestern British Columbia from May 1 through May 3, 1966.

Equipment

Our equipment consisted of a single Sportsman (model no. 918) sealed power unit (six volts), two hand flashlights (three volts each), a small hand net and several burlap sacks. This apparatus is regular camping gear and is therefore simple to use and inexpensive to obtain.

Procedure and Techniques

We visited Langara Island with the intention of banding only those murrelets which could easily be extracted from their burrows. It was while visiting with a local native at camp one evening that the thought of night-lighting came to us. Sammy Davis, our Indian friend, related stories of how, in days past, his people set large fires along the beaches to attract "sea pigeons." When in range the birds, most likely Ancient Murrelets, were apparently netted and then killed. He told us that many birds flew directly into the fires. We tried this approach but used Coleman lamps instead of fires. Also, we set up mist nets in front of the lamps along the lower

beach. For all our efforts we netted a single murrelet.

Since slope is a critical limitation for nesting Ancient Murrelets we decided to climb the nearby hills the following evening and attempt to capture the birds by night-lighting with hand lamps.

About 7:30 P.M. we could see the murrelets gathering in large rafts in the sheltered bays offshore from the colony. With fading daylight we meandered through the almost impenetrable salal underbrush following game trails to the forested slopes where the murrelets nest. We found several spots where the forest floor was devoid of vegetation and riddled with burrows. Dense tree growth must prevent sunlight from reaching these areas. We distributed our equipment, spaced ourselves about 50 feet apart, and waited. For two hours the muffled roar of the surging waters below and the gentle sounds of the wind forcing through the trees kept us company. Finally, about 10:30 P.M., the flight to the colony commenced and suddenly the air became filled with blurred, muttering forms. Soon the ground around us was alive with scampering murrelets. We watched and listened with astonishment. The birds would either crash into the sharp-needed spruce trees and fall from branch to branch, with wings flapping, to the ground, or fly directly into the large, dense salal beds. How the murrelets manage to find their respective burrows still astounds me. Finally we settled down and began night-lighting.

As soon as a bird was heard hitting the vegetation nearby an immediate search began. Once spotted the "blinded" bird was approached from the blinded side and netted. The netter then put the murrelet into a sack, to await banding. Usually six murrelets per sack was a maximum number. The flight of murrelets lasted until midnight, the peak coming about 11:00 P.M.

Most captured birds were spotted on the ground but in three instances we climbed trees, about 25 feet up, to retrieve spotted birds.



Ancient Murrelet

Findings and Discussion

Ancient Murrelets (*Synthliboramphus antiquus*) are quite easy to capture by night-lighting. In approximately two hours of actual operations about 30 murrelets were captured and at least another 50 were spotted but missed. We attributed our unsuccessful attempts to lack of experience and organization, weak lighting from the two smaller flashlights and the short-handled fish net.

This preliminary attempt to capture Ancient Murrelets by night-lighting was more an experimental effort than a planned one. Just what effect, if any, night-lighting has on the murrelets is difficult to ascertain. Some birds we released went directly to their burrows, others sought protection in nearby salal bushes and some scurried to the cliff edges and flew to sea.

I feel confident that capturing seabirds by means of a strong hand lamp is the least damaging, to both bird and colony, of capturing devices used on seabirds. Hopefully, this method can be modified to increase captures and will inspire banders to look more closely at the possibility of studying seabirds.

I should also mention that I have successfully captured, though not in numbers, Leach's Petrels (*Oceanodroma leucorhoa*), Pigeon Guillemots (*Cephus columba*), Tufted Puffins (*Lunda cirrhata*) and Black Turnstones (*Arenaria melanocephala*) by night-lighting with the Sportsman sealed power unit on other British Columbia seabird colonies.

GREAT BLUE HERON SWIMMING

by R. Wayne Campbell, 5536 Hardwick St., Burnaby, B.C.

Most ornithologists regard Great Blue Herons (*Ardea herodias*) not as swimmers, but as graceful, long-legged birds that spend much of their time wading in shallow marshes and quiet lagoons in search of food. Along the British Columbia coast, tidal marshes are favorite foraging areas for these birds. While photographing herons feeding on speckled sanddabs (*Citharichthyes stigmaeus*) in this habitat near the Vancouver International Airport, B.C. on February 14, 1968 I observed an unusual incident of a Great Blue Heron swimming.

About 300 feet to sea from my hide two Great Blue Herons were resting on a driftlog, about four feet in length. One bird left the log and alighted on the water nearby and started splashing. Through 8 x 40 binoculars I watched the bird bathe itself for approximately four minutes. The heron would commence each bathing series by dipping its entire head under water. This would be followed by a distention of the neck, then both head and neck were raised from the water and the wings flapped vigorously for five to 10 seconds.

The second heron, in the meantime, left the log and alighted only momentarily near the bathing bird. With ease the bird lifted itself from the water and flew back to the driftlog.

After bathing for about five minutes the heron on the water began swimming ashore. The bird sat quite low in the water and in silhouette resembled a large Western Grebe. It swam with neck bent and wings folded high on its back. The swimming motion was jerky, similar to that of an American Coot. I could not see the movement of legs and feet and therefore cannot comment on the actual swimming process.

The bird swam about 200 feet and waded the remaining distance to shore. Once ashore, among other herons, the bird preened itself. About

10 minutes later I flushed the herons from the beach and checked for possible injury in the swimming heron. The bird's flight, however, was strong and direct.

The following day I visited the same area on a low tide and checked for possible shoals but found the probable depth of water sufficient to swim in.

The swimming habit of the Great Blue Heron has been reported by several writers. Their observations, however, differ somewhat from the one described above. Bent (U.S. Nat. Museum Bull. 135:110, 1926), Jenson (*Auk*, 47:245-6, 1930) and Roberts (*Birds of Minnesota*, vol. 1, p. 178, 1932) report Great Blue Herons alighting on water and swimming for the purpose of catching fish. Slipp and Flahaut (*Murrelet*, 22:55-6, 1941) attribute their two observations of swimming Great Blue Herons to "impaired powers of flight."

VISIT THE MAURICE G. STREET WILDLIFE SANCTUARY

Blue Jay readers are reminded that the SNHS Summer Meeting will be held this year in the Maurice G. Street Wildlife Sanctuary at Nipawin. This will be an opportunity to visit the new sanctuary.

The dates are June 14-16 and the headquarters for registration and field trip departure will be the Legion Hall, Nipawin. Details appeared in the last *Newsletter*. For last-minute reservations, telephone Mrs. George Grieve, Nipawin.

PRAIRIE NEST RECORDS SCHEME

Contributors to the Prairie Nest Records Scheme are reminded that good records of even the commonest species are needed. Write to Dr. Robert W. Nero, Manitoba Museum of Man and Nature, 147 James Avenue, Winnipeg 2, Manitoba for nest record cards and send your completed cards back to him at the end of the season.



Photo by Don Dabbs, Saskatoon

Barn Swallow family at Emma Lake

ROAD KILLS OF BIRDS AND MAMMALS IN SOUTHEASTERN ALBERTA

by **Kees Vermeer** and **Bruce Switzer**, Canadian Wildlife Service,
10015 - 103 Avenue, Edmonton, Alberta

A survey of road kills of birds and mammals in southeastern Alberta was made incidental to other field studies for the Canadian Wildlife Service during May, June, July and August of 1967. The survey was conducted by car on paved roads only, between latitudes 49° 00' N and 54° 30' N and longitudes 110° 00' W and 114° 00' W.

The number of avian and mammalian road kills observed during 10,154 miles of driving is recorded in Table 1. Richardson's Ground Squirrels were most commonly found, making up 71 per cent of all observed road kills. None of the other species constituted more than five per cent of the kills.

The monthly variation of road kills of the Common Crow, Richardson's Ground Squirrel, Muskrat, and Striped Skunk observed per 1,000 miles driven in southeastern Alberta is shown in Table 2. Those four species were most commonly found, with at least 50 kills being observed for each. The large number of road kills of Richardson's Ground Squirrels in July is probably related to the greater number of animals present at

that time as well as the increased highway traffic. The large kill of crows in July can be explained by the presence of young crows and by the occurrence on roads of many dead Richardson's Ground Squirrels which the crows feed upon. Muskrats wander extensively in the spring (Paul Errington, 1963. Muskrat populations. Iowa State University Press, 665 pp.), hence the large kill of that species in May. Many young Striped Skunks were observed as vehicle casualties in July and contributed to the increase in road kills of skunks during that month.

Table 2. Number of road kills observed for four species per 1,000 miles driven in southeastern Alberta during May, June, July and August, 1967.

Species	Number of road kills per 1000 miles driven			
	May	June	July	Aug.
Common Crow....	0	1	24	12
Richardson's Ground Squirrel	42	169	323	68
Muskrat	12	2	3	5
Striped Skunk	4	4	9	6

Table 1. Number of Road Kills of Mammals and Birds recorded in Southeastern Alberta in May, June, July and August, 1967

Species	Number of road kills	Species	Number of road kills	Species	Number of road kills
BIRDS					
Grebes		Franklin's Gull	10	Red-winged Blackbird	10
Horned Grebe	1	Bonaparte's Gull	1	Blackbirds (unidentified)	25
Ducks		Black Tern	3	Chestnut-collared Longspur	1
Mallard	27	Doves		Longspurs (unidentified)	2
Pintail	23	Mourning Dove	2	Domestic	
Gadwall	1	Owls		Hen	3
Blue-winged Teal	3	Great Horned Owl	3	MAMMALS	
Shoveler	3	Burrowing Owl	1	Rodents	
American Widgeon	6	Long-eared Owl	1	Richardson's Ground Squirrel	1682
Redhead	1	Short-eared Owl	3	Muskrat	50
Lesser Scaup	4	Goatsuckers		Porcupine	42
Ducks (unidentified)	3	Common Nighthawk	1		
Hawks		Woodpeckers			
Sharp-shinned Hawk	1	Yellow-shafted Flicker	1		
Red-tailed Hawk	1	Passerines			
Marsh Hawk	2	Eastern Kingbird	1	Carnivores	
Sparrow Hawk	10	Horned Lark	4	Coyote	1
Gallinaceous birds		Barn Swallow	2	Long-tailed Weasel	2
Sharp-tailed Grouse	1	Cliff Swallow	6	Badger	7
Ring-necked Pheasant	22	Black-billed Magpie	30	Striped Skunk	61
Gray Partridge	10	Common Crow	104		
Coots		American Robin	4	Ungulates	
American Coot	9	Starling	4	White-tailed Deer	1
Shorebirds		House Sparrow	2	Domestic	
Lesser Yellowlegs	1	Western Meadowlark	9	Cat	37
Sandpiper (unidentified)	1	Yellow-headed Blackbird	1	Dog	3
Gulls and terns					
California Gull	29				
Ring-billed Gull	21				

NOTES ON THE WATER SHREW IN BOG HABITATS OF SOUTHEASTERN MANITOBA

by **Charles H. Buckner** and **David G. H. Ray**, Canadian Department of Forestry and Rural Development, 25 Dafoe Road, Winnipeg 19



Sketch by James A. Drouin

Water Shrew

Although the usual habitat requirements of the Water Shrew, *Sorex palustris palustris* Richardson, include the edges of streams, the species is also an infrequent resident of sphagnum bog areas that may be a great distance from open water, exclusive of surface puddles (Buckner, 1966. Populations and ecological relationships of shrews in tamarack bogs of southeastern Manitoba. *J. Mamm.*, 47:181-194). During some 16 years of population studies on bog-dwelling shrews, information on the home range of the Water Shrew was obtained from two individuals encountered in live traps. Seven additional specimens captured in snap-back traps provided data on feeding habits in this habitat.

The specimens reported herein were collected in tamarack bog sites in the Whiteshell Provincial Park in eastern Manitoba. All sites were treed with tamarack, *Larix laricina* (Du Roi) K. Koch, about 30-50 feet high. There was a thick mat of sphagnum moss on the floor, and ground cover was comprised chiefly of Labrador tea, *Ledum groenlandicum* Oeder, and dwarf

birch, *Betula glandulosa* Michx. All sites were at least one-half mile from the shores of a lake or stream.

The traps, whether for taking specimens alive or dead, were set at intervals of one chain (66 feet) in a grid fashion. Live traps were of the pitfall type and consisted of clean one-quart oil cans. These were set in the evening and examined at two-hour intervals throughout the hours of darkness. Traps for collecting dead specimens were commercial snap-back mouse-traps, and were set in the morning and examined daily.

The first Water Shrew captured alive was taken and released, after being marked by toe-clipping), on a plot one and one-half miles south of Red Rock Lake. In all it was captured seven times in five different traps, between August 18 and August 27, 1955: its trap-revealed home range was 0.8 acres. The second live-trapped individual was captured near Darwin. It was captured four times in four different traps between September 22 and September 29, 1966: its trap-revealed home range was 0.5 acres. These are the first measurements of



home range for this species so far as we are aware. Home ranges of the other long-tailed shrews in these areas are considerably more extensive, almost double in most cases, and the range of the Short-tailed Shrew in this habitat is some 30 per cent greater (Buckner, *op. cit.*).

Because the usual diet of the Water Shrew consists largely of small fishes and aquatic insects, and because in these restricted ranges fishes were unavailable and the supply of aquatic insects severely restricted, it was important to determine the feeding habits of the species under these con-

ditions. The stomach contents of the seven specimens taken in snap-back traps were examined, and it was found that the largest single food class in every case was ground beetles (Carabidae). These insects formed about 30 per cent of the diet of the Water Shrew under these circumstances, and one individual had fed exclusively upon them. Next in importance was hymenopterous larvae and pupae, and third, lepidopterous pupae. Of minor importance were snails, Diptera, Arachnida, Odonata and Plecoptera. Thus it appears that the Water Shrew can behave as an opportunistic predator when the circumstances so demand.



Sketches by James A. Drouin
Water Shrew

SHORT-TAILED SHREW IN NEST-BOX AT WEST SHOAL LAKE, MANITOBA

by **Herbert W. R. Copland**, Manitoba Museum of Man and Nature,
Winnipeg

A line of nest-boxes (20 at present) has been maintained for a few years at West Shoal Lake, north of Woodlands, Manitoba, by a small group of members of the Natural History Society of Manitoba, Winnipeg. The nest-boxes are positioned on trees close to the edge of long, narrow and intermittent bluffs of deciduous trees and shrubs along a low sandy ridge which is a former lake beach. The ridge is roughly parallel to and about 200 yards from the southwestern side of the lake. Primarily we were inter-

ested in encouraging Eastern Bluebirds to nest, as they had been recorded in adjacent areas on a few occasions. No bluebirds have occupied any of the boxes to date but Tree Swallows and House Wrens have been using them.

On April 26, 1964, while cleaning out the boxes prior to the approaching nesting season, a mummified shrew was discovered in box No. 11. This box is mounted on a white poplar, the height of the entrance hole above ground level being seven feet.

My notes of the previous summer show that box No. 11 on July 1 contained a Tree Swallow's nest with five young. No remains of birds were found in the box on April 26, 1964.

The shrew was submitted to Dr. C. H. Buckner, Canada Forest Research Laboratory, Winnipeg, who identified it as a Short-tailed Shrew (*Blarina brevicauda*) (1964. Parasite collections. Nat. Hist. Soc. Man. Newsletter No. 4, p. 41). Recently Dr. Buckner stated that when he examined the shrew, he found the skull had been damaged by being punctured or crushed.

It is not unusual to find small mammals occupying nest-boxes. Checking their bluebird nest-boxes in 1966, the Brandon Junior Bird Club found 12 being used by White-footed Mice and a litter of three Gray Squirrels in another (Annual Report of Brandon Junior Bird Club Nest Project, 1966, *Blue Jay*, 24:197). Both of these species are excellent climbers.

Shrews are generally regarded as terrestrial animals, but a recent observation shows that they have considerable climbing ability. Otto Horvath (1965. Arboreal predation on bird's nest by Masked Shrew. *Journ. Mamm.*, 46:495) notes that on May 28, 1963 near Hope, British Columbia, at the nest of a Solitary Vireo which was about five and one-half feet above the ground, a small mammal jumped from the slanting trunk of the nest-bearing tree and disappeared in the lower vegetation. When the nest-holding branch was touched two other small mammals jumped from the nest. They were collected and identified as juveniles of *Sorex cinereus*, the Masked or Common Shrew. "The suspended nest was mutilated and its contents thrown out; the broken shells of the three eggs lay on the ground. Although the shrews were not seen in the act of plundering, it is almost certain that they were responsible for destroying the contents of the nest."

Shrews also apparently make use of man-made structures more fre-

quently than is generally believed. Two incidents strengthen this opinion. In 1965, S. E. Bland, Regina, in an article entitled "Shrew in a Beehive", (*Blue Jay*, 23:175) mentions finding the skeletonized remains of a shrew in a wintered hive. In addition, during inspection of bee equipment on October 22, 1965, in the Birch Hills area (Saskatchewan), he found a live shrew in a beehive set on the grass. There was evidence that the shrew had been removing dead bees from open cells of the comb in a section of the hive which had been gassed earlier for insect pests. The shrew, which died within a day or two, was later identified as a Masked Shrew.

The second case was reported by Wayne Miller of the Brandon Junior Bird Club, Brandon, in a letter to W. Harvey Beck of the Manitoba Museum of Man and Nature, Winnipeg. On June 14, 1967 he found a shrew using a nest-box positioned four feet from the ground on a farmer's fence next to a cultivated field two miles east of Douglas, Manitoba. The nest-box had a two-inch diameter entrance hole. Nest material, presumably being used by the shrew, was a gray down, much like kapok, with husks of some type of grass also present. The nest had the appearance of having been used for some time. The shrew looked dark gray in colour, had the characteristic pointed nose and the size was judged to be twice that of the Pygmy Shrew. Miller states: "It was also capable of remarkably speedy locomotion . . . one reason why I don't have the specimen."

How did the Short-tailed Shrew get into the nest-box at West Shoal Lake? The evidence of the skull being damaged by puncturing or crushing suggests that a shrike or some other predatory bird had captured the shrew and stored it in the nest-box. On the other hand, judging by the above reports, the shrew could have entered the box on its own and could have been killed by the resident swallows.

ADDITIONS TO THE VASCULAR FLORA OF THE CYPRESS HILLS, ALBERTA

by **B. de Vries**, Fort Qu'Appelle, Saskatchewan, and **C. D. Bird**,
Department of Biology, University of Calgary, Alberta

Introduction

The Cypress Hills of southwestern Saskatchewan and southeastern Alberta have long been of interest to naturalists and the general public (Alberta Society of Petroleum Geologists, 1965; Bird & Halliday, 1967). They are, however, still inadequately known from a scientific standpoint.

A detailed survey of the vascular plants of the region was made by Breitung (1954). Recent studies by both of us have shown, however, that a large number of additional species occur in the Cypress Hills of Alberta, that some of these are new to the Cypress Hills as a whole, and that a few are apparently new to the flora of Alberta.

An especially interesting aspect of the flora of the region is the presence of a Cordilleran element (Breitung, 1954; Bird, 1962). The present additions and evaluation of earlier reports have allowed us to present a more accurate portrayal of this group.

Specimens have been deposited in the Herbarium of the University of Calgary, and in that of the Canada Department of Agriculture, Ottawa. All collections reported herein were made within the boundaries of the Cypress Hills Provincial Park, Alberta.

Acknowledgments

The field work of the first author was supported by the University of Calgary, and that of the second author by the National Research Council of Canada. Grateful appreciation is extended to Dr. B. Boivin, who examined many of the critical specimens.

Data and Discussion

New Records

Breitung (1954) reports 664 taxa as occurring in the Cypress Hills as a

whole. However, if one follows recent taxonomic changes and the more conservative treatment of Moss (1959), 21 of these can be regarded as synonyms. Breitung's paper gives the superficial impression that the vascular flora of the Cypress Hills is well known. This may be true of the Saskatchewan side where 600 taxa were reported but it is definitely not true of the Alberta side where only 241 were reported.

Eighty-three of the taxa which Breitung recorded only for the Saskatchewan side of the Hills, have now been found by us on the Alberta side. They are: *Equisetum scirpoides*, *Botrychium virginianum*, *Phalaris arundinacea*, *Carex bebbii*, *Juncus ensifolius*, *Allium textile*, *Zygadenus gramineus*, *Corallorhiza maculata*, *C. trifida*, *Salix bebbiana*, *S. planifolia*, *Commandra pallida*, *Rumex mexicanus*, *Claytonia lanceolata*, *Arenaria lateriflora*, *Cerastium arvense*, *Stellaria longifolia*, *S. longipes*, *Delphinium bicolor*, *Ranunculus cardiophyllus*, *Corydalis aurea*, *Arabis divaricarpa*, *A. hirsuta*, *Cardamine scutata* (*C. pensylvanica*), *Erysium cheiranthoides*, *Lesquerella arenosa*, *Mitella nuda*, *Ribes hudsonianum*, *Amelanchier alnifolia*, *Crataegus chrysocarpa*, *Fragaria virginiana* var. *glauca* (*F. glauca*), *Geum macrophyllum* var. *perincisum*, *G. triflorum*, *Prunus pensylvanica*, *P. virginiana* var. *melanocarpa*, *Rubus pubescens*, *R. strigosus*, *Spiraea lucida*, *Astragalus agrestis*, *A. missouriensis*, *A. triphyllus*, *Hedysarum alpinum* var. *americanum*, *Lathyrus ochroleucus*, *Oxytropis sericea* var. *spicata*, *Vicia americana*, *Viola adunca*, *V. nephrophila*, *V. nuttallii*, *V. renifolia*, *Elaeagnus commutata*, *Shepher-*

dia canadensis, *Oenothera biennis*, *Heracleum lanatum*, *Perideridia gairdneri*, *Sanicula marilandica*, *Cornus canadensis*, *C. stolonifera*, *Moneses uniflora*, *Pyrola asarifolia*, *P. elliptica*, *Arctostaphylos uva-ursi*, *Lysimachia ciliata*, *Primula incana*, *Colomia linearis*, *Phlox hoodii*, *Cryptantha bradburiana*, *Moldavica parviflora*, *Collinsia parviflora*, *Penstemon nitidus*, *Veronica americana*, *Galium boreale*, *Linnaea borealis*, var. *americana*, *Symphoricarpos albus*, *S. occidentalis*, *Viburnum edule*, *Campanula rotundifolia*, *Antennaria aprica*, *A. campestris* var. *athabascensis*, *Arnica cordifolia*, *Erigeron philadelphicus*, *Gaillardia aristata*, *Lactuca pulchella* and *Petasites sagittatus*.

Twenty-six taxa found by us in Alberta were not recorded from either the Saskatchewan or the Alberta side of the Cypress Hills by Breitung. They are: *Lycopodium complanatum*, *Najas flexilis*, *Carex platylepis*, *C. praegracilis*, *Juncus tracyi*, *Salix padophylla*, *Silene noctiflora*, *Anemone multifida* var. *hudsoniana*, *Ranunculus gmelinii*, *R. pedatifidus* var. *leiocarpus*, *Arabis retrofracta* var. *collinsii*, *Barbarea vulgaris*, *Ribes oxyacanthoides* var. *saxosum*, *Agrimonia striata*, *Epilobium alpinus*, *Osmorhiza depauperata*, *O. purpurea*, *Androsace septentrionalis* var. *diffusa*, *A. septentrionalis* var. *subumbellata*, *Apocynum androsaemifolium* var. *pumilum*, *Dra-cocephalum nuttallii*, *Veronica serpyllifolia* var. *humifusa*, *Aster laevis* var. *geyeri*, *Chrysanthemum leucanthemum*, *Hieracium cynoglossoides*, *Senecio pauperculus*, var. *firmifolius*.

Ranunculus pedatifidus var. *leiocarpus*, *Arabis retrofracta* var. *collinsii*, *Ribes oxyacanthoides*, var. *saxosum*, *Apocynum androsaemifolium* var. *pumilum*, and *Senecio pauperculus* var. *firmifolius* are apparently new to Alberta, as they are not recorded by Moss (1959).

The Cordilleran Element

Breitung (1954) compiled a list of 85 taxa which he felt belonged to the Cordilleran element. Our studies have revealed, however, that this number

can be reduced to 55 if one follows the more conservative nomenclature of Moss (1959) and if one takes into account new information on the geographical distribution of some of the species. In addition, three of the new taxa reported by us bring the revised total to 58. Those taxa which we regard as being Cordilleran are: *Pinus contorta* var. *latifolia*, *Alopecurus occidentalis* (*A. glaucus*), *Bromus marginatus*, *Danthonia californica*, *Festuca idahoensis*, *Poa ampla* (*P. nevadensis*), *Stipa columbiana*, *Trisetum wolfii*, *Carex hoodii*, *C. microptera*, *C. pachystachya*, *C. petasata*, *C. raynoldsii*, *C. simulata*, *Juncus ensifolius*, *J. saximontanus*, *Goodyera oblongifolia*, *Salix caudata*, *S. drummondiana*, *S. pseudocordata*, *Betula papyrifera* var. *subcordata*, *Polygonum bistortoides*, *Claytonia lanceolata*, *Montia linearis* (*Claytonia linearis*), *Arenaria capillaris* var. *americana* (*A. congesta*), *Clematis verticellaris* var. *columbiana*, *Ranunculus cardiophyllus*, *R. inamoenus*, *R. pedatifidus* var. *affine*, *Thalictrum occidentale*, *Heuchera flabellifolia*, *Saxifraga rhomboidea*, *Crataegus columbiana*, *C. douglasii*, *Potentilla diversifolia*, *Rubus parviflorus*, *Sorbus scopulina*, *Spiraea lucida*, *Astragalus vexilliflexus*, *Lomatium dissectum* var. *multifidum* (*Leptotaeria multifida*), *Osmorhiza purpurea*, *Perideridea gairdneri*, *Chimaphila umbellata* var. *occidentalis*, *Monotropa hypopithys* (*M. lanuginosa*), *Pterospora andromedea*, *Lithospermum ruderales*, *Besseyia cinerea*, *Mimulus guttatus*, *Antennaria corymbosa*, *Arnica cordifolia*, *Aster eatonii* (*A. oregonus*), *Crepis atrabarba* (*C. exilis*), *C. intermedia*, *C. occidentalis*, *Erigeron radicans*, *Hieracium albiflorum*, *H. cynoglossoides* and *Senecio integerrimus* var. *exaltatus* (*S. exaltatus*). This element comprises 8.6% of the overall total for the Hills.

Six of the plants regarded by Breitung as Cordilleran, and two of ours, have arctic-alpine or sub arctic-alpine distribution patterns. Those comprising the first are *Calamagrostis purpurascens*, *Hordeum*, *brachyanthe-*

rum, *Arenaria rubella*, *Ranunculus pedatifidus* var. *leiocarpus* and *Erigeron compositus*; while those making up the second group are *Barbarea orthoceros*, *Epilobium alpinus* and *Erigeron acris* var. *asteroides* (*E. droebachiensis*).

Summary

One hundred and nine taxa are added to the vascular flora of the Cypress Hills of Alberta, thereby raising the total to 350. Eighteen taxa, including nine varieties, are added to the Cypress Hills as a whole, thus making a total of 669. One species and four varieties are reported as new to Alberta.

A reinterpretation of the vascular flora of the Cypress Hills reveals that 58, or 8.6% of the taxa, belong to the Cordilleran element.

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Photo by Harold Hosford, 4116 Roblin Blvd., Winnipeg

Twinflower

EXCAVATION OF FORT RIVIERE TREMBLANTE (N.W.C. 1791-98)

by **Hugh T. Mackie**, Field Director and Laboratory Supervisor,
Department of Anthropology, University of Manitoba, Winnipeg

From July 2 to September 15, 1967, a crew from the University of Saskatchewan at Saskatoon carried out archaeological excavation at the North West Company's Fort Rivière Tremblante. The site is located in the area of the Shellmouth Dam Reservoir along the upper reaches of the Assiniboine River and near the present town of Kamsack, Saskatchewan.

To date, I, like many of my predecessors, have been unable to discover any primary source of documentation for Fort Rivière Tremblante. The yet unpublished journal of John MacDonnell written while in charge of Fort Espérance does however make frequent reference to his superior, Cuthbert Grant, and his headquarters Fort Rivière Tremblante (*MacDonnell's Journal*, 1793-95, Fort Espérance, Rare Book Room, McGill University Library). Further reference to Fort Espérance can be found in the *Blue Jay*, Vol. 12(4):17, 1954.

The explorer and geographer David Thompson visited the site, which he called Aspin House, in 1797. From an

astronomical positioning made by Thompson, J. B. Tyrrell, while on a geological survey in 1890, was able to locate, describe and photograph the remains of the fort (*Report on North-Western Manitoba*, Geological Survey of Canada, Vol. V, Report E). This description follows:

"The fort or trading post appears to have covered about a quarter of an acre, in which area are six pits that doubtless represent the old cellars. Beside one of the largest is a heap of boulders that were formerly built into the fireplace of the largest of the houses."

On September 19, 1938, Professors Grant MacEwen and Arthur S. Morton of the University of Saskatchewan visited the site area, then a wheat field, and gave the following description:

"Scraps of bone, doubtless mostly buffalo bone, lay about the spot, and a brass button, possibly of a trader's uniform, was picked up. Such is the end of Cuthbert Grant's House." (Morton, 1942, *The posts*



Looking north at what is now known to be the remains of the double fireplace.
Photo by Tyrrell, 1890 — courtesy of the Geological Survey of Canada.



The northeast quadrant of the site as it existed in the spring of 1967, prior to excavation. James Ostoforoff standing to the immediate north of double fireplace.

of the Fur-traders on the Upper Assiniboine River.)

Through the years the public have come to know the site as Grant's House or Grant's Post. This name has no doubt become common for a number of reasons. The fort was originally constructed in 1791 by Robert Grant of the North West Company. In 1793 Cuthbert Grant (no relation to Robert Grant) was placed in charge of the fort, which was by then known as the Headquarters for the North West Company's Upper Red (Assiniboine) River Department. The frequent association of the name Grant with this site, the ease of pronunciation and the lack of published documentation available to the public have all played a part in the misnomer. Although many large forts have been named "house" this name often suggests a relatively small site. This is especially true when discussing sites which lack major documentation. As the result of one season's excavation we can say that the site was very

large by North West Company standards. Its size and construction would certainly substantiate its role as Headquarters of the Upper Red River Department.

In the month of May, and prior to the field season proper, potential areas for excavation were plotted, and datum points, axis and base lines were temporarily laid out by transit to act as a guide for the field crew's return in July. The site area was then planted by the land owner to barley which was expected to yield a heavy growth by midsummer. At the start of excavation the following questions were being considered. How much of the structural evidence would still be *in situ*? Would all but the cellars be disturbed by the plough? Was Tyrrell correct in his interpretation of 100 year-old cellar remains and if so, where exactly were they located? Would there be a stockade or would Fort Rivière Tremblante really be only a cluster of houses? With these and many more technical questions in

mind the stage was set for the summer's work.

Early discoveries were the base stones of a double fireplace belonging to what was later designated as building No. 3. From this point, carefully controlled excavations spread outward to take in assorted features of the fort. A stockade trench was discovered just outside of and associated with the construction of building No. 1 and likely building No. 2. This association we called construction phase one, and we presumed it to represent the 1791 construction by Robert Grant. The stockade enclosure is in the shape of a parallelogram of 245' x 148'. Buildings No. 1 and 2 are both represented by quantities of charred flooring, floor joists, remains of posts, mortar and chinking, fireplaces and cribbed cellars formerly used for the storage of trade goods.

Several feet outward from the first stockade trench was found a second stockade trench in association with building No. 3. As this stockade and



Base stones and ashes of double fireplace; floor joists in upper left corner.

building post-dates construction phase one, it is referred to as construction phase two, which possibly coincides with Cuthbert Grant's taking over the fort in 1793. It would seem natural that the fort might be enlarged at that time for it marked the beginning as Headquarters for the Upper Red River Department. The second stockade trench was several feet dis-



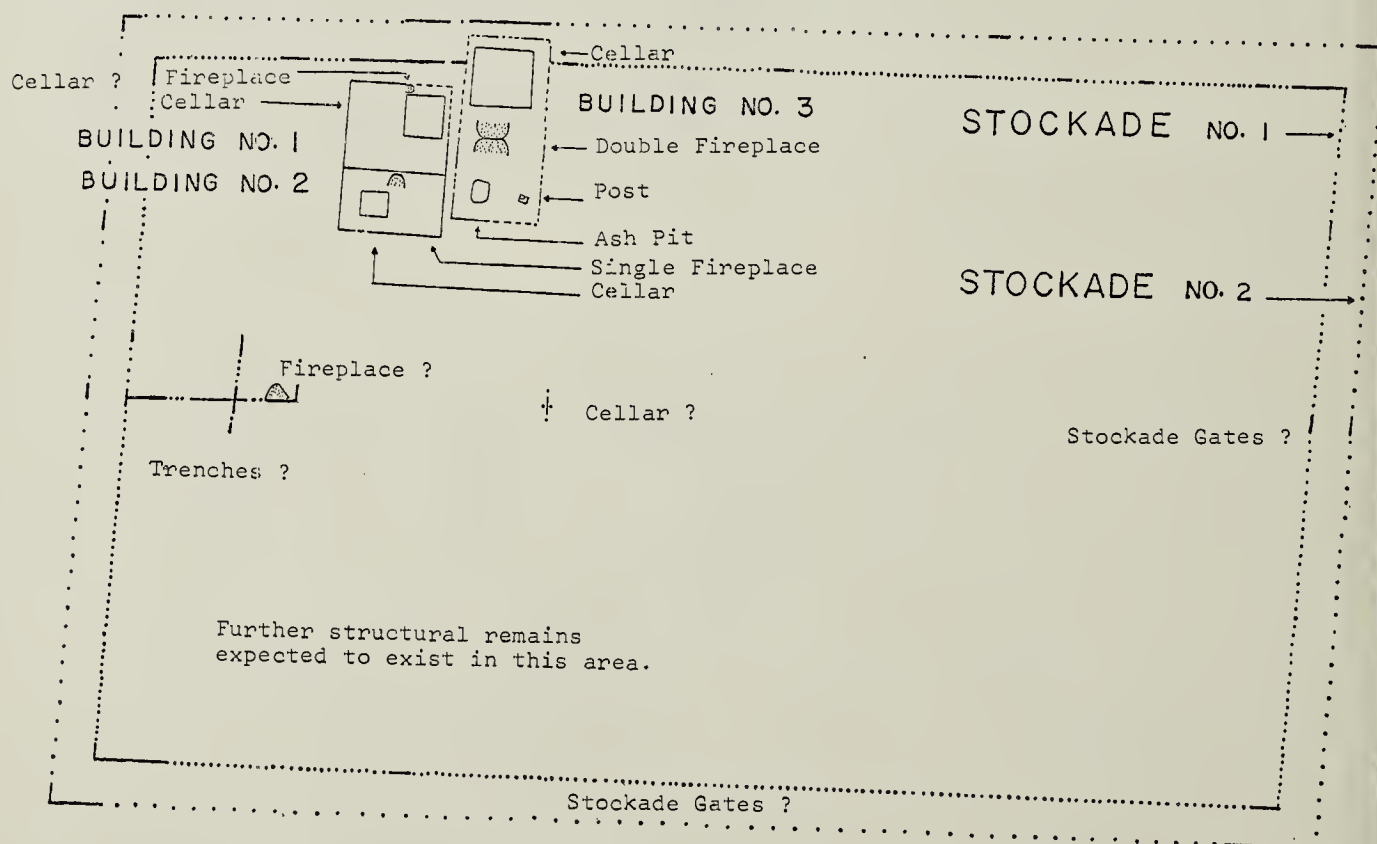
Remains of charred flooring, chinking, floor joist, cellar (extreme right) and ashes of Building Two fireplace. This area corresponds to that which is several feet in front of and to the right of Mr. Ostoforoff. (Photo #2).

tant from the first and roughly parallel to it on all sides. Building No. 3's two large features were a deep cribbed cellar with the remains of a very thick sod roof and the base stones of a large double fireplace. Through the course of plotting stockade trenches the remains of two and possibly three buildings have been found which await proper excavation. Other trenches, very similar to stockade trenches, are known to run inward from the first stockade but also demand further attention before an interpretation might be rendered. A quantity of other building remains are expected to be found in another season's excavation.

Time has not allowed for a complete artifact analysis. Artifact yield and remains of structural materials *in situ* is considered good for the historical period under investigation and in view of the disturbed condition of the upper soil layers by cultivation. Some artifacts may be of interest to fur trade scholars, for, unlike many

other excavated forts, Rivière Tremblante's eight year occupation enables an accurate dating of artifacts. Contributions to research in the areas of beads, gunflints and possibly ceramics are likely to result from the final study. Other artifacts found included small items such as silver, brass and copper jewelry, hand tools, gun parts, fishing tackle, etc. A number of artifacts are of local manufacture; many of these display native technology of both local and foreign materials. These are interesting features of what is a European-Indian contact period fort.

Still to be analysed is a large quantity of structural and natural materials such as mortar and chinking, flooring, posts, wood samples, ashes and soils. Quantities of mortar, found within buildings one and two, show much variation in consistency, form and decoration. Through analysis, a better understanding will be obtained of wall, partition and fireplace construction.



FORT RIVIÈRE TREMBLANTE

1967 - EXCAVATION



General guidance to the project was afforded by Dr. Z. S. Pohorecky, Head, Department of Anthropology and Archaeology, University of Saskatchewan, Saskatoon, and Dr. W. J. Mayer-Oakes, Head, Department of Anthropology, University of Manitoba, Winnipeg. The permanent field personnel in addition to my wife and myself consisted of the following University of Saskatchewan students: Dave Meyer, Carrot River; Dean Clark, Melfort, and Don Welsh, Prince Albert. Many others too numerous to mention have contributed to the project through their field labors, documentary research or much appreciated moral support. Financial support was provided by the Historic Sites Advisory Board of Manitoba in a grant awarded to Dr. W. J. Mayer-Oakes. Additional financial support and the loaning of equipment was

provided by Mr. A. M. Seivewright, Supervisor, Historic Sites Branch, Department of Natural Resources, Regina, Saskatchewan. The majority of the field equipment was supplied by the Department of Anthropology and Archaeology, University of Saskatchewan, Saskatoon.

On behalf of all those who have played a role in the research of Fort Rivière Tremblante, I would like to express gratitude to Mr. and Mrs. Alex Burbach and family who allowed the crew to commute over their property and through their yard, and who also allowed excavations to take place in the midst of their barley field.

If adequate monetary support can be obtained and proper arrangements made the crew look forward to completing the field work on this project during the summer of 1968.

Plans will be definite by May 15.

Junior Naturalists

Edited by **Joyce Deutscher**, 7200 6th Ave., Regina

SURVIVAL FOOD

I do hope you are not going to get lost in the woods this summer but, if you do, you might as well know a few foods that will help keep you alive. The foods I am talking about are not the tastiest, but they are easy to find and to recognize.

Let us look at the oldest living things—trees. Actually only a very small part of a large tree is alive, the part that is outside the inner core and inside the dry outer bark. This inner bark is the living part of the tree trunk and the part which is edible.

If you look through a book on botany you will notice the name Linnaeus used frequently in connection with the scientific names of plants, for he was the father of modern botany. In 1732 Linnaeus reported that the people in Lapland gathered large quantities of the bark of the Scotch pine for use as a food. They

gathered the white inner bark of the pine and used it to make bread in time of famine.

Perhaps you are thinking that eating the inner bark of the pine is all right for the Laplanders, but not for native North Americans. Have you heard of an Indian tribe called the Adirondacks? The word means "tree-eaters." It seems that early explorers noted large areas of trees stripped of their bark and it was too big a job for a porcupine!

I have yet to eat pine bark but I have chewed spruce gum, that sticky sap from the spruce tree. The gum I chewed was from a spruce tree in a park. Now that park is frequently sprayed for mosquitoes, so I hesitate to chew the sap from those trees during the mosquito season.

Once while vacationing in the Cypress Hills, I made myself a drink of spruce tea. I put a few spruce needles in a cup, poured boiling water

over them and let them steep for a few minutes. I didn't like the taste, but I was fighting off a cold at the time and hoped that the Vitamin C in the needles would help me. You have all heard how Cartier, on advice from some Indians, made spruce tea for his sailors to help prevent scurvy, a Vitamin C deficiency disease.

According to the authors, Fernand, Kinsey and Rollins, of "Edible Wild Plants of Eastern North America," all members of the pine family have edible inner bark. In Saskatchewan the members of this family include balsam fir, white spruce, black spruce, jack pine, and lodgepole pine. Try eating the soft inner bark of these trees raw or boiled.

Happy holidaying and don't get lost. Pine bark isn't that tasty a dish!

SUMMER TIME IS ACTIVITY TIME

Summer is the season when young animals go exploring and Junior Naturalists are no exception. Many of you will include well known nature areas and parks in your travels, others will visit lesser known places and some may even explore unknown regions. We would like to feature your stories about visits you have made to public parks, nature areas, museums and historic sites. Tell where you were, when you went there, what you did and what you saw. What did you like most about the area? What did you like least—for example, all that garbage that the campers left behind. Send your letters to Mrs. Joyce Deutscher, 7200 6th Ave., Regina.

SO YOU THINK YOU CAN'T SKETCH

Why not use that nature note book of yours for sketching as well as for notes? You can't draw a straight line? Who can find a straight line in nature anyway? Your drawings are for your own personal use so if that group of lines means something to you that is all that matters.

As you remember it, the squirrel looked like this, and you drew it as

you remembered it, with its head up and its claws firmly clasping the tree trunk.

Practise a little and you will be surprised at how much more meaningful your lines become. If you get something you really like send it in. Remember, if you are preparing drawings for publication they should be done on plain not lined paper, and should be sent flat, not folded. An HB or 2B pencil is good for darkening areas in. A 2H lead is harder and good for getting fine sharp detailed lines. India ink is excellent. Too light a line does not reproduce well.

Happy sketching!

MY OWL PICTURE

by Laurie Thompson, age 10, Wisconsin, U.S.A.

In the spring of 1966 we visited the Chandler Ranch at Val Marie where my father made a movie film about prairie life.

The thing that interested me the most was the little Burrowing Owl. We saw many of them perched on empty prairie dog mounds and in my father's film one stared at the camera and looked something like the one in the picture I'm sending to you.



BIRD LIST FROM THE NORTHWEST TERRITORIES

by **Mickey Kraus**, Nahanni Butte, N.W.T.

Editor's Note: Mickey, who is 14 years old, sent us the following list of birds. We have taken the liberty of arranging them in the order of the Field Check-List of Saskatchewan Birds. Mickey tells us that about half of the birds on his list nest in the Nahanni Hot Springs area and that he has counted as many as 60 robins at one time in his yard. His list is as follows:

Ducks: Mallard, Pintail, Green-winged Teal, Blue-winged Teal, American Widgeon, Shoveler, Lesser Scaup, Common Goldeneye, Surf Scoter, Common Merganser.

Grouse: Spruce Grouse, Ruffed Grouse.

Plovers: Killdeer.

Snipe, Sandpipers, etc.: Common Snipe, Spotted Sandpiper, Solitary Sandpiper, Greater Yellowlegs.

Gulls: Mew Gull.

Owls: Great Horned Owl.

Kingfishers: Belted Kingfisher.

Woodpeckers: Yellow-shafted Flicker, Yellow-bellied Sapsucker, Hairy Woodpecker, Downy Woodpecker, Northern Three-toed Woodpecker.

Flycatchers: Say's Phoebe.

Swallows: Violet-green Swallow.

Crows and Jays: Gray Jay.

Thrushes, Robins, Bluebirds, etc.: Robin, Varied Thrush, Mountain Bluebird.

Pipits: Water Pipit.

Waxwings: Bohemian Waxwing.

Shrikes: Loggerhead Shrike.

Starlings: Starling.

Wood Warblers: Black-and-white Warbler, Myrtle Warbler.

Meadowlarks, Blackbirds: Red-winged Blackbird, Rusty Blackbird.

Tanagers: Western Tanager.

Grosbeaks, Finches, Sparrows, and

Buntings: Evening Grosbeak, Pine Grosbeak, Gray-crowned Rosy Finch, Hoary Redpoll, Savannah Sparrow, Slate-colored Junco, Tree Sparrow, White-crowned Sparrow, White-throated Sparrow, Fox Sparrow, Lapland Longspur, Snow Bunting.

A BIRD THAT DEFIES EXTINCTION

by **Derwent Mazur**, Yellow Creek

Many people are unaware of the fact that the governments of Canada and the United States spend large sums of money in conserving species of birds that are threatened by extinction. And one of these species is the beautiful Whooping Crane.

For years the Whooping Crane numbers have been very low, even now with a little tragedy they can certainly be wiped out. It is true that the young may be confused for a Sandhill Crane, but all hunters, please think twice before you shoot. As one man said (he was the Whooping Crane's best friend) "We appeal to the sportsmanship of humanity of every person, from Saskatchewan to Texas, to withhold his fire and to give any large white bird God-speed instead of a charge of buck shot."

With the co-operation of all sportsmen and pleasure-loving people many problems would be overcome. Thus with some help the Whooping Crane would survive because it doesn't want to die.

RUFFED GROUSE NEST

by **Audrey Zip**, age 12, Yellow Creek

About a month ago when I was bicycle riding on an old country road I stopped to pick some fruit. As soon as I stepped into the bush, four Ruffed Grouse flew out. Then when I took another step 17 grouse flew out. After they all flew away, I went to see what they had been doing there. Sure enough, there was a nest. It must have been that they were of one family.

BEAVER KEEP DAM REPAIRED

by **Robert Kotyk**, Yellow Creek

Last summer my dad found a beaver dam about one and a half miles east of Yellow Creek down by the track. It was made of mud and sticks, about five feet deep and seven feet wide. My dad had to break the dam up about five times. If he had left it, it could have flooded the C.N.R. tracks.

Letters and Notes

PREDATORS DEFENDED

I note in the March 1968 issue of the *Blue Jay* a letter by Richard Bothner of Beechy on the subject of predators. Statements of the kind he makes about predators seem to me irresponsible. I admit that raptors consume some game birds, but what is the percentage they take? Many of the imported partridges and pheasants that he is concerned about could have died from other causes—weather conditions, domestic cats, dogs, wires, chemicals, road kills, etc. It is easy to put the blame on predators, but I would investigate before acting. If a predator is causing trouble around a farm, removal of that individual may of course be necessary, but declaring war on all predators is complete nonsense.

Another question I would like to ask Mr. Bothner is how many cats he has on his farm. In Alberta, the cat is doing more damage to the sportsman's "huns" and pheasants, and to songbirds, than all the crows, magpies, hawks, owls, coyotes, etc., can ever do.—*Michael J. Hampson*, R.R. 3, South Edmonton, Alberta.

In his letter to the *Blue Jay* (March, 1968) Mr. Richard Bothner of Beechy commented that "there are too many people writing to the *Blue Jay* in support of predators." He seems to feel that when prey species are not in surplus, predators should be controlled by man. I think Mr. Bothner has missed the point of predator protection, and does not understand the mechanisms of natural control of populations. Those of us who deplore the destruction of predators support the protection of non-predators as well. We are simply asking that man not put himself in the role of a God ruling over nature, but that he let nature rule herself. When prey are scarce, predators will migrate or die of starvation without man's intervention. When prey are abundant, predators will help to keep the prey popu-

lations in check and, in fact, act to maintain stable populations of both predators and prey. I certainly sympathize with Mr. Bothner when he has a family of partridge around the house and most of them disappear over the winter. A covey of birds is a pleasant sight, especially over the winter months, but I would suggest that if we let nature take her course, the partridge will survive and come back in a short time, and he will find that a natural environment that regulates itself is far superior to the kinds of environment that man tends to create.

The Saskatchewan Natural History Society and its members should be commended for their actions in support of predators and should do more rather than less. There is, for example, no serious justification, scientifically or economically, for control of coyotes and wolves in Saskatchewan. One of North America's most famous wildlife biologists, Starker Leopold, has shown that the predator control program of the U.S. Fish and Wildlife Service is a farce. Millions of dollars have been spent to control coyotes, for example, when in fact the coyote is probably more beneficial than harmful and certainly is not a serious enough threat to livestock to justify a control program. The poisoning of wolves in Northern Saskatchewan is even more ludicrous. No one seriously suggests that the timber wolf is a threat to big game populations, yet the Saskatchewan Government has supported poison campaigns against this species for years.

One of the most vicious examples of predator control in Saskatchewan, however, is the annual slaughter of hawks and owls at the Forestry Farm and the Game Farm near Saskatoon. Steel traps are set on poles and the birds are caught by the leg and often left to dangle until they die. Hundreds of Great Horned Owls and many hawks are killed every winter at these

two locations, all for the supposed protection of a few pheasants, an introduced species of doubtful value. Leading members of the S.N.H.S. have been aware of this situation for years, but nothing that I know of has been done about it.

While I sincerely appreciate the concern of Mr. Bothner and others who feel that predators sometimes overstep the mark, the history of man's actions toward predators, or his fellow man, have not convinced me that we are sufficiently civilized or knowledgeable to improve on natural laws of population control.—*Richard S. Miller*, School of Forestry, Yale University, New Haven, Connecticut.

CANADIAN WOLF DEFENDERS

For about two years I have received the *Blue Jay* and find this publication most interesting. Included here is some information which I hope is in keeping with the basic ideals of the Saskatchewan Natural History Society and worth covering in a future edition.



CANADIAN WOLF DEFENDERS

Recently, "Canadian Wolf Defenders" was formed by a group of interested people. It is a society to emphasize conservation and appreciation of the wolf, which we believe is very necessary if this magnificent animal, symbolic of wilderness and freedom, is to last out this century. The wolf has a definite part in the traditional balance of nature and is well worth future study. We urge others to take a stand for this predator and help develop a favourable and more realistic outlook.—*Robert G. Guest*, President, Canadian Wolf Defenders, 10989-126 St., Edmonton, Alberta.

RIVER OTTER FEEDING ON GLAUCOUS-WINGED GULL

During the summers of 1966 and 1967, two River Otters (*Lutra canadensis*) inhabited Mitlenatch Island Nature Park, B.C. (for a description of this area see *Blue Jay*, 23:158).

On Mitlenatch Island River Otters have been observed feeding on ling cod (*Ophiodon elongatus*) and raiding Pigeon Guillemot nests. Adult otters have been seen among the Glaucous-winged Gull colony but my first actual sighting of the mammal feeding on gulls was on August 7, 1967. An adult otter was seen approaching the top of West Hill, 160 feet above sea level. Parent gulls gave cries of alarm and harassed the mammal. The otter, however, not bothered by this, disappeared behind the crest of the hill. It reappeared in a few seconds and in its mouth was a young Glaucous-winged Gull. The bird was carried by the back of the neck and its wings flapped wildly in an attempt to escape. The otter carried the gull part way down the hill and disappeared into a dense thicket of hardhack, ninebark, and wild rose. It is quite possible that the young otters were waiting there to be fed.—*Ken Kennedy*, Burnaby, B.C.

THE HUNTER HUNTED

One fall when I was hunting ducks I had an interesting encounter with a skunk. I was hiding in some tall weeds and cattails in a dry water run near a slough bordered by willows and poplar when I noticed a large skunk coming towards me over the summerfallow, casually searching for food as he followed the edge of the tilled land. When he reached the edge of the dry run he halted momentarily but he had not yet seen or smelled me. On the spur of the moment, I snarled in the most realistic dog manner that I could muster. The skunk hesitated no longer. Up went his flag aggressively and he came for me as fast as his stubby little legs would permit. Although I had a shot-

gun, I didn't want to shoot him, so I jumped up and ran off to a position where I would be upwind of him. He stopped short when he winded me. One front paw froze in mid-air. Cautiously he moved back a step or two as though saying to himself: "Boy, have I made a big blunder!" Turning around, he ran off at full steam into the willows. I was quite amused at being charged by a skunk which thought I was a dog, but I felt guilty that it should have been afraid of me.—*Sam Beaton, Churchbridge.*

ENDANGERED SPECIES

I am not happy to see listed in Jonas Bros. catalogue of taxidermy items "rug shell and wall" forms for a number of animal species listed as endangered by the International Union for the Conservation of Nature; such species as polar bear, muskox, and oryx. The head illustrated in the catalogue is the gravely endangered Arabian oryx species. Surely, if there is a demand for these "shells" to mount skins of these animals there must be a large number of them still being shot. Museums are becoming daily more enlightened about their responsibility for restricting collecting, so this demand is probably from the hunting world. Do you think it is possible that Jonas Bros. are unaware of the need for immediate conservation of certain endangered species — in respect to their future trade, if for no more enlightened a reason? — *Mrs. M. A. Galloway, 1549 Spadina Crescent East, Saskatoon.*

SEEN BY A SEER

Rats and mice are very fond of bale stacks, especially those with grain in them, and even wheat straw where they find a few unthreshed heads. They thrive much better here than in loose feed stacks. We have managed to keep the rats away from our stacks by cleaning them up regularly and carefully. But in spite of the help of a half dozen good barn cats, after a few months mice seem to get estab-

lished gradually in the bale stacks, even multiplying during the winter months, particularly during prolonged mild spells. On February 10, 1968 I found, on removing a wheat straw bale from the ground layer of a stack, the largest "pile" of baby mice I have ever seen. They were not in a very cosy nest as they sometimes are, but there they were—about 50 of them piled up together. They were of varying sizes, but none large enough to run away, and there was no sign of an adult in charge. Although no adults were in evidence, I believe these were the common house mice.—*J. Boswell Belcher, Dilke.*

Editor's Note: Both white-footed mice and house mice frequently have combined litters, particularly in situations where space is at a premium. Possibly also, the young crawled together for warmth, increasing the crowding.

MIGRANT AND RESIDENT SPARROWS AT SHEHO, SASKATCHEWAN

I was interested in William Anaka's account in the December, 1967 *Blue Jay* of the Lark Sparrow seen on his farm June 6, 1967. I also wish to report that several males of this species were observed here in our yard for the first time on May 14, 1966. They were also seen the following day and I had a good opportunity to observe them at close quarters, feeding with a mixed group of sparrows. Their facial markings and white outer tail feathers were distinctive. There may have been females with them, but the males were noticed especially as their singing first drew my attention. I looked for them again in 1967, but didn't see any. The late Maurice Street reported in the March, 1965 *Blue Jay* that he had found a breeding colony at Nipawin in June, 1964. Since Nipawin is nearly straight north of here, the Lark Sparrows I saw might have been on their way there.

Many birds have changed their range since the earlier bird books were written. The reports of Lark Sparrows in central and northern Saskatchewan, and reports of Mockingbirds and Yellow-breasted Chats, that have appeared in recent years in the *Blue Jay*, would seem to indicate this.

We had breeding colonies of Chestnut-collared Longspurs here each season from 1942 to 1949, and Mrs. Priestly also found a colony at Yorkton at that time. Since then I have never seen them. In the years 1944 to 1950 I observed at least one pair of Baird's Sparrows each summer, presumably nesting, but I have not seen them here since.

Our native resident sparrows are the Song, Vesper, Savannah, Clay-colored and Le Conte's. Spring and fall bring migrant sparrows in varying numbers. Some seasons the White-throated Sparrow has been heard singing in the woods in late June, so possibly an occasional pair has nested here.

The Le Conte's Sparrow has taken to nesting in the tame Brome Grass fields, especially where the grass is long and tangled. It is practically impossible to find their nest until the field is cut and raked. There seem usually to be two broods; the young of the first nest are sometimes barely able to get out of the way of the machinery in mid-July and the second nest with its eggs is usually destroyed during haying. This nesting in hay-fields is a case of adapting to existing conditions, as overgrazing by cattle has spoiled much of the grass cover around sloughs.

The increased numbers of cattle and resulting overgrazing is reducing the grass cover over much of the country. This spoils the habitat for many of the ground-nesting birds, and I find species such as Meadowlarks and Sharp-tailed Grouse much less common than they used to be.

Also thousands of acres of bush are cleared every year. It is inevitable, of course, that parkland should be

cleared to bring new cropland into production, but in my opinion too much marginal land—especially in community pastures—is being cleared, with resultant reduction in wildlife. More undisturbed sanctuaries are needed, but they will have to be provided by the Government, not individuals.—*William Niven, Sheho.*

CURIOUS BEHAVIOUR OF A BOHEMIAN WAXWING

In the early afternoon of Sunday, January 28th, 1968, I observed a Bohemian Waxwing in the yard behind my home on Lakeview Avenue, Regina, deliberately eating frozen snow heavily impregnated with the urine of our Scottish Terrier, alternately with clean snow, each a few beakfuls at a time. I have not observed this habit before, nor have I seen it recorded.

A flock of up to 100 of these birds frequent a stand of mature Russian Olives in this yard daily at this time of year.—*John E. Brindle, 2819 Lakeview Avenue, Regina.*

Editor's Note: In 1965, in a paper published in the *Auk* (82:606-623) it was noted that "Crossbills, like other cardueline finches, avidly eat salt whenever it is available, and there are many records of these birds ingesting rock salt placed on roads to melt snow, material from salt blocks of the type supplied for cattle, salt spilled around ice cream freezers, material leached out of cement, wood ashes, and urine-stained snow" They also report that "Ingestion of salt increases the osmotic concentration of the body fluids, and this results in stimulation of osmoreceptors that ultimately leads to a drinking response by the birds." The reason for this "curious behavior" is still not clear.

CORRECTION: In the Grizzly Bear article in the December 1967 *Blue Jay* (25: 190-191), the locality should read Township 29 instead of Township 24.

GREEN HERON

I would like to point out an error re: sight record of Green Heron at Delta, Manitoba in the December, 1967 *Blue Jay* left hand column, "a possible sighting of a Green Heron at Saskatoon, Saskatchewan" should read "along a small creek draining into Payne Lake east and south of Radville, Saskatchewan."

Also if it can be claimed as hypothetical for Manitoba, a distance of 80 miles north of the 49th parallel, on the basis of their observation, then I feel we can also regard it as hypothetical for Saskatchewan, a mere 20 miles north of the border.—*Clifford Matthews*, Prairie Migratory Bird Research Centre, Saskatoon.

INTERESTING BIRDS AT MIAMI, MANITOBA

I would like to mention a few of the unusual birds I have seen in the past two years 1966 and 1967.

In 1966 in May we had a pair of Mockingbirds here for a whole week. Shortly after, we saw an Indigo Bunting while we were cleaning seed grain, and it stayed for an afternoon. In 1967 I saw two Indigo Buntings in July.

Other birds that were of interest to me were a Great Horned Owl, a Prairie Falcon and a Peregrine Falcon. On the night of February 4, 1967 we were sitting playing a game in front of our picture window when a Screech Owl hit the window. Fortunately it was not hurt.—*Gregory Mustard*, Miami, Manitoba.

EARLY SPRING ON THE PRAIRIES

A letter from my brother at Boissevain, Manitoba mentions the unusually early return of geese to the White-water Lake area this year. He saw the first flock on March 8 and at the time of writing the letter at the beginning of April, estimated there were between three and four thousand Canadas feeding on one of his fields.

I have just looked through my checklists (old and yellow) that I used to

keep when I lived at Boissevain and my earliest record for Canadas was March 25, 1948.

I miss the time and opportunity to study the birds that I had when I farmed at Boissevain but there are many interesting species here, particularly sea birds, and I still get the opportunity occasionally to try and get acquainted with them.—*Hal G. Duncan*, 13410 Crescent Rd., R.R No. 3, White Rock, B.C.

SOME MOCKINGBIRD RECORDS

Some observations of Mockingbirds in California in 1966 allowed me to recognize the alarm call-note, a kind of "churr", shortly after my return to Saskatchewan. On May 2, 1966 I heard the same distinctive "churr" along the banks of Doghide Creek, near Tisdale, and shortly saw a Mockingbird. I saw this bird for several days in the same location. I later learned that one had been seen about a mile farther south, almost in Tisdale.

Last spring, on June 4, 1967, we had occasion to drive to Leader. We found the ferry non-operative because of high water, so drove along the north bank of the South Saskatchewan River for a picnic. Again, the now familiar "churr" sounded, and sure enough, there was another Mockingbird in the saskatoon and chokecherry bushes along the river flat.—*Elwin Baines*, Box 8, Tisdale.

PREDATOR GULLS

Gulls in flight we must admire, but some of their habits are hard to accept. Last summer while I was driving the tractor, two or three Ring-billed Gulls followed my every move. When I moved half a dozen duck eggs they ate them, and they gobbled down every young bird they saw. The gulls would fly after and catch the young birds that were just learning to fly.—*C. H. Shulver*, Lafleche.

The Blue Jay Bookshelf

FLORA OF THE PRAIRIE PROVINCES, PART 1: Pteroids, Ferns, Conifers and Woody Dicotyledons. By Bernard Boivin. 1967. Laval University, Quebec. 202 pp. Paper covers.

This study has been reprinted from *Phytologia* 15, 121-159, 329-446, (1967), and 16, 1-47, (1968), as No. 2 of "Provancheria", which are memoirs of the Louis-Marie Herbarium, Faculty of Agriculture, Laval University. It appears to be a photographic reproduction of a typescript.

This is the first part of a work covering the flora of Manitoba, Saskatchewan and Alberta, to be completed in four parts. The price for the four parts will be \$8.00 before complete publication and \$10.00 thereafter, payable to the author or to the Blue Jay Bookshop, Box 1121, Regina, Saskatchewan.

First of all, let me say that the work will, when complete, constitute a complete, critical, authoritative and up-to-date treatment of our flora by a competent classical taxonomist. This is something which has not been carried out for the whole area now called the Prairie Provinces since Hooker's *Flora Boreali-Americana* was completed in 1840; though, of course, numerous floras have dealt with parts of our area since then.

The Flora contains keys, synonymy, brief descriptions, and indications of range and habitat. The keys seem workable. The synonymy (listing of Latin names under which the plant has passed in other works) is very complete.

On the subject of synonymy a few words may be added. It is an illusion to imagine that the scientific (or Latin) names of plants are any more changeless than the common or English names. Most species have accumulated at least one synonym, some many. One of the most prolific sources

of synonyms is botanists giving different names to the phases of a variable species, which later are found to be connected by intermediates. One may get a rough idea of the variability of a species in the field by noting the number of synonyms given in Boivin's Flora; I counted 14 for the notoriously variable *Potentilla gracilis* complex.

This flora is designed for the serious student of vegetation; pictures are lacking, and technical botanical terms are used extensively. I trust a glossary will be included in one of the later parts. The beginner should start with a simpler illustrated work.

As the Flora covers not only the grassland zone, but also the Boreal Forest zone north to 60° N (the north edge of the provinces), it should provide virtually complete coverage for Mackenzie and Keewatin territories, except perhaps along the Arctic coast.

I like the way the author has faced up to the problem of pairs (or more) of species which are separated in most floras but which are in practice indistinguishable; he merges them, wholly or as varieties of one another. To cite a few examples: *Lycopodium complanatum* and *L. tristachyum*; *Ribes oxycanthoides*, *R. setosum*, and *R. hirtellum*; *Sorbus decora* and *S. scopulina*; and *Galium trifidum* and *G. labradoricum*.

Yet this reviewer must admit to finding some things in this Flora that are startling, to say the least. The most disagreeable of these concerns the sequence of orders and families. Dr. Boivin has adopted more or less the phylogenetic (pertaining to the evolutionary tree) classification of Hutchinson, who postulates a fundamental cleavage of the dicotyledons into predominantly woody and predominantly herbaceous groups, the woody being more primitive. Following this classification, this Part I of the Flora contains (besides ferns and conifers) Sub-Class I, *Lignidae*,

Woody Dicots. The Part in effect includes not quite all our deciduous shrubs and trees, plus a miscellany of families whose Canadian species are herbs but which have been assigned to the *Lignidae* on the strength of exotic woody relatives, such as *Leguminosae*, *Urticaceae*, *Viola*, *Cucurbitaceae*, etc. These assignments seem a bit capricious in places. One gathers that Part II will include the remaining polypetalous and apetalous dicots, Part III the gamopetalous dicots, and Part IV the monocots.

The trouble is, this is an extremely unorthodox arrangement and users of the book will find it awkward to locate a desired group without checking the general index. Almost all other floras are laid out in a standard sequence named Englerian (after the originator), to which botanists have become accustomed; one knows where to open the book to reach any given group.

If the unorthodox arrangement under discussion were any truer—any nearer the evolutionary sequence—we would of course have to adopt it and forego the convenience factor of the old. But it is not. Science knows nothing certain about the evolutionary interrelations of the dicots, because no fossil evidence thereon has been found. Some must exist somewhere, but to our knowledge the dicots came on stage in the Cretaceous full-formed, like Aphrodite from the sea, in the form of advanced genera like *Populus*, *Viburnum*, *Quercus*, etc. Lacking fossil evidence, phylogenetic taxonomists erect hypotheses and deduce evolutionary schemes, with every man's scheme differing from his neighbour's. This Hutchinson scheme, separating as it does such closely related groups as *Labiatae* and *Verbenaceae*, *Araliaceae* and *Umbelliferae*, is one of the more extreme ones.

Another feature worthy of some remark is the unfamiliar French names for topographical features. While these doubtless have priority, as they date from the days of the buffalo hunters, yet some explanation could be given modern readers to

whom they are unfamiliar. Some examples are:

La Petite Montagne de Cyprès. p. 140. Refers to the high ground around Sandilands in southeastern Manitoba.

Coteau de Prairie, pp. 105, 197. Means Manitoba Escarpment. Also as Prairie Coteau, pp. 82, 137. To be distinguished from the Missouri Coteau in southern Saskatchewan, not mentioned in Part I.

Sault à la Biche, p. 82. Unknown to me, but somewhere in southern Manitoba.

Boisé Coteau. On p. 26 seems to refer to the Cypress Hills; p. 52, definitely the Cypress Hills; p. 65, uncertain. Yet elsewhere in the book the Cypress Hills are often mentioned, while Wood Mountain is not.

A name change that will be hard to swallow is the substitution of *Pinus divaricata* for the very well known *P. banksiana*, on the strength of one year's priority in 150 or so. The author himself has used *Pinus banksiana* as a name in the discussion of Mistletoes on pp. 173 and 200.

Other lesser matters worthy of remark are the unconventional splitting of the Fern Family into four; the name *Carpogynia* for the Oak-Fern to which no two floras give the same Latin name; the recognition of five species of Rose from Saskatchewan instead of the usual three (and of even these in the field I am never certain); the adjective "dimegueth" applied to the pairs of leaves of *Abronia micrantha* (must mean "unequal").

I am looking forward with interest to what the author is going to do in the forthcoming parts to critical and interesting groups such as *Carex*. Because the work, despite its unusual arrangement, will be a standard reference for many years to come, consideration should be given in any future editions to making it a sturdy one-volume hard-bound book rather than paper-bound pamphlets.—John H. Hudson, Saskatoon.

**A FIELD GUIDE TO WILD-
FLOWERS of Northeastern and
North-central North America.** By
Roger Tory Peterson and Margaret
McKenny. 1968. Houghton Mifflin
Company, Boston. 420 pp. Illustrated
by Roger Tory Peterson with black
and white sketches and 22 pp. in
colour. \$5.95. Available from the Blue
Jay Bookshop, Box 1121, Regina,
Saskatchewan.

This new guide is a welcome addition to the already famous Peterson Field Guide series. The method which for 34 years revolutionized the identification of birds is here focussed on wild flowers. Again the underlying principle is that of emphasizing characters and visual impressions recognizable in the field, providing a relatively easy method of identification.

The authors point out that this book "attempts to extend the normal colour visual approach to analysis of shape and other visual aids such as arrows pointing to critical details in order to create in a sense a pictorial key based on readily noticed visual impressions rather than on technical features." The amateur botanist therefore is not burdened with cumbersome taxonomical terminology and technical know-how, but instead is given in a single pocket-size volume, a text which is simple to understand and a pictorial key. The care and accuracy with which this guide has been executed shows the understanding the authors have for the amateur botanist, and it is with them in mind that this really excellent guide was born.

The main body of the text describes 1293 species of plants belonging to 84 families (including a few flowering shrubs and woody vines) likely to be found in the northeastern and north-central United States roughly east of the 97th meridian and the 47th parallel of latitude in Canada. The species coverage is most adequate for the northeastern and Great Lakes area but less complete toward the periphery. Although the guide is primarily designed for the eastern amateur botanist, his western counterpart will

also find this guide of some use, as roughly 365 species belonging to 64 families are described for his area.

The aims in the production of this guide seems to be threefold:

1. To make available at modest cost a guide to the most common wild flowers of the northeastern and north-central United States and adjacent Canada with descriptive text illustrated in black and white and colour, in suitable pocket format ($4\frac{1}{2}'' \times 7\frac{1}{2}''$) with durable hard cover and attractive dust jacket.
2. To call attention to characteristic habits of plants by ingeniously placed arrows and a first introduction of handy family symbols in page margins to aid in field identification and quick reference.
3. To provide in a single location in the book, all the information needed for accurate plant identification and understanding, with short textual descriptions of each species on the left hand page accompanied by black-and-white or colour illustrations on the right hand page closely following the text.

The authors' own experience of publishing nature books and in nature studies has made them especially conscious of the practical requirements of a wildflower guide. Hence the accurately executed illustrations, including six colour sections handily keyed by upper right hand corner tabs immediately elucidating the plant habit and flower colour; the magnification indicator on each page of illustrations; the plant length measurements in the text; a capsule description of the families of flowers treated and a pictorial glossary on the front endpaper (flowers) and on the rear endpaper (leaves). All of these greatly enhance the value and usefulness of this guide. A special page on Survival makes us acutely aware of the urgent need for conservation of our natural heritage.

The scientific nomenclature is that of Gray's *Manual of Botany*, while the vernacular names do not adhere to any authority. The system of family arrangement is mainly artificial,

based on a visual one. This shortcut to identification will greatly aid the novice in easy recognition of wild-flowers in the field. To preserve this simplicity, the guide is restricted to the more showy and common of flowering plants and as a consequence trees, shrubs (with a few exceptions), ferns, grasses, sedges, rushes, etc., are excluded. The guide also omits the more obscure herbaceous species, localized species, or peripheral invaders. Most of the illustrations are based upon actual living plants and are drawn by the first author. A double index, one at the end of the descriptive text listing families and species, and one before the actual text (families of flowers) which lists the pages where representatives of family are to be found with indication of colour section, greatly aid in the quick locating of any particular plant or flower throughout the text. The additional listing of the number of species found in any one area as compared to Gray's *Manual of Botany* and Britton and Brown's *Illustrated Flora* might cause some confusion unless one is familiar with these manuals.

The reviewer finds the guide authoritative and a welcome addition to the Peterson Field Guide series. It should be a constant companion on any holiday trip, especially one taken in the East.—*B. de Vries*, Fort Qu'Appelle.

LIFE, LAND AND WATER, PROCEEDINGS OF THE 1966 CONFERENCE ON ENVIRONMENTAL STUDIES OF THE GLACIAL LAKE AGASSIZ REGION. Ed. by W. J. Mayer-Oakes. 1967. Occasional Papers No. 1, Department of Anthropology, University of Manitoba. Published by University of Manitoba Press, Winnipeg. 414 pp., illustrated. Hard-cover \$6.00, soft cover \$4.00.

Glacial Lake Agassiz began to form from the meltwaters of the receding Laurentide Glacier about 12,000 years ago. At its greatest extent, the Lake occupied some 110,000 square miles and profoundly affected the climate,

plant and animal life and surface features of Manitoba and vast areas of northern Saskatchewan, northwestern Ontario, the Dakotas and Minnesota.

This fascinating and important subject was examined at the Conference on Environmental Studies of the Glacial Lake Agassiz Region held in November, 1966 at Winnipeg. Support for the project was obtained from the University of Manitoba, the National Museum and the National Research Council. Papers were presented on the geology, climate, flora, fauna and human history of the region by authorities from several Canadian and American universities and research institutions. This book is a collection of the papers presented at that historic conference.

Through the use of data and techniques from several disciplines, the papers present a multidimensional description and explanation of the changing environments of the Region. The book thus offers an environmental backdrop and a collection of relevant literature from other disciplines for those persons wishing to do more specific research in the Region's history, archaeology or whatever the case may be.

The vast amount of empirical data, theoretical explanations, maps, diagrams and tables and the bibliography at the end make this a useful reference book for individuals engaging in such diverse projects as tracing Lake Agassiz beach lines, determining the contemporary environment of a particular archaeological site, dating geological developments or tracing recent settlement patterns.

This book will not provide light reading for the amateur naturalist and even the learned academic will probably not want to read all of the papers presented. Yet knowledge of past environments and geophysical phenomena and the origins of present surface features can make both amateur nature trails and professional expeditions much more interesting and scientifically rewarding.—*Steve Prystupa*, Manitoba Museum of Man and Nature, Winnipeg.

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